



**U.S. Department of Energy**  
**Office of River Protection**

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Richland, Washington 99352

03-OSR-0113

Mr. R. F. Naventi, Project Manager  
Bechtel National, Inc.  
2435 Stevens Center  
Richland, Washington 99352

Dear Mr. Naventi:

CONTRACT NO. DE-AC27-01RV14136 – PROCUREMENT PROGRAM, IDENTIFICATION AND CONTROL OF ITEMS AND PROCESSES PROGRAM, AND QUALITY CONTROL PROGRAM INSPECTION, A-03-OSR-RPPWTP-009

This letter forwards the results of the subject inspection conducted March 3 through 7, 2003. The inspection team concluded Bechtel National, Inc. (BNI) was adequately implementing the (1) Procurement Program, (2) Identification and Control of Items Processes and Program, and (3) Quality Control (QC) Program in accordance with the requirements of the Quality Assurance Manual (QAM). Details of the inspection are documented in the enclosed Inspection Report.

The inspection team determined BNI adequately purchased materials and services, controlled and dispositioned supplier non-conformances, and performed source verification and receiving inspections as required by the QAM. The inspection team found important-to-safety (ITS) items were generally handled, identified and stored in accordance with the QAM. The inspection team also found QC inspections were planned and performed by qualified and certified QC inspectors. The team identified two procedural violations of minor safety significance as Non-cited Findings and two Assessment Follow-up Items (AFI). The first Non-cited Finding involved the use of welding electrode identification paint that did not meet the requirements of the Welding Control Manual. The second involved the closure of a Nonconformance Report (NCR) without documenting the signoff by QC. The first AFI concerned inspection of the completed evaluation package for pipe supports to determine if appropriate critical characteristics were identified for all ITS applications of the pipe supports. The second AFI involved an NCR document that implied a willful failure to follow procedures. The Non-cited Findings and AFIs are discussed in the enclosed Inspection Report.

Mr. R. F. Naventi  
03-OSR-0113

-2-

If you have any questions, please contact me, or your staff may contact Pat Carier, WTP Safety Regulation Division, (509) 376-3574.

Sincerely,

OSR:JLP

Roy J. Schepens  
Manager

Enclosure

cc w/encl:  
W. R. Spezialetti, BNI

U.S. DEPARTMENT OF ENERGY  
Office of River Protection

INSPECTION: Procurement Program, Identification and Control of Items and Processes  
Program, and Quality Control Program Inspection

REPORT NO: A-03-OSR-RPPWTP-009

FACILITY: Bechtel National, Inc.

LOCATION: 2435 Stevens Center  
Richland, Washington 99352

DATES: March 3 – 7, 2003

INSPECTORS: J. Polehn, Team Lead, Sr. Regulatory Technical Advisor  
P. Hernandez, Team Member  
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APPROVED BY: P. Carier, Verification and Confirmation Official  
WTP Safety Regulation Division

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## EXECUTIVE SUMMARY

### Procurement Program, Identification and Control of Items and Processes Program, and Quality Control Program Inspection

## INTRODUCTION

This inspection of the Bechtel National, Inc. (the Contractor) implementation of Quality Assurance Manual (QAM) activities covered the following areas:

- Procurement Program (Section 2.0)
- Identification and Control of Items and Processes Program (Section 3.0)
- Quality Control Program (Section 4.0)

## SIGNIFICANT OBSERVATIONS AND CONCLUSIONS:

- The Contractor purchased materials and services in accordance with engineering specifications, material and services requisitions, and requirements of QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*. Contractor purchasing activities for welding electrodes, concrete penetration liners, stainless steel sumps, carbon steel wall penetrations, and HVAC installation services included the necessary technical and quality requirements. Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents were performed in accordance with the QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*. (Section 2.1)
- The Contractor performed appropriate supplier performance evaluations, source verifications, and receiving inspections of welding electrodes, concrete penetration liners, stainless steel sumps, and carbon steel wall penetrations as required by QAM Policy Q-07.1, *Control of Items and Services*. The Contractor appropriately processed, evaluated and dispositioned supplier nonconformances as required by QAM Policy Q-07.1, *Control of Items and Services*. (Section 2.2)
- The Contractor was appropriately performing an evaluation for procurement of commercial grade pipe supports, and subsequent use in important-to-safety applications, in accordance with QAM Policy Q-07.1, *Control of Items and Services*. The Contractor's evaluation was not finalized during the inspection. The inspectors opened an Assessment Follow-up Item, A-03-OSR-RPPWTP-009-A01, to perform further ORP inspection of the completed evaluation package to ascertain if appropriate critical attributes were identified for all important-to-safety (ITS) applications of the pipe supports. The follow-up inspection will also ascertain if appropriate inspections and acceptance criteria were specified for the critical attributes of various types (i.e., deadweight, thermal, and seismic) of pipe supports. (Section 2.3)

- The Contractor's *Field Materials Management* procedure met the identification and control of items requirements of QAM Policy Q-07.1, *Control of Items and Services*. The Contractor identified and controlled its ITS reinforcing steel bars, embeds, and hermetically sealed cans of welding electrodes, in accordance with the requirements of QAM Policy Q-07.1, *Control of Items and Services*. (Section 3.1)
- The Contractor incorporated the requirements of QAM Policy-13.1, *Handling, Storage, and Shipping* in its *Field Materials Management, Storage and Issue, and Welding Filler Metal Control* procedures and specifications. The Contractor implemented the requirements of the procedures and specification and received, identified, handled, and stored important-to-safety items in accordance with QAM Policy Q-13.1, *Handling, Storage, and Shipping*, with one exception. Contractor personnel color coded welding electrodes with paint that did not meet the *Welding Filler Metal Control* requirements. The inspectors concluded the failure was of minor safety significance and identified the failure as a Non-cited Finding. (Section 3.2)
- The Contractor qualified and certified QC inspectors in accordance with QAM Policy Q-10.1, *Inspection*. The Contractor documented QC inspector qualifications and certifications in accordance with QAM Policy Q-10.1, *Inspection*. (Section 4.1)
- The Contractor's program for developing and documenting inspection requirements, and implementation of the program, continued to meet the requirements of the QAM Policy Q-10.1, *Inspection*. (Section 4.2)
- The Contractor identified, controlled, documented, evaluated and dispositioned nonconforming items in accordance with QAM Policy Q-15.1, *Control of Nonconforming Items*, and Contractor QC and Field Engineering personnel were knowledgeable of, and implemented, the NCR process. Two exceptions were identified. The first exception concerned an open Nonconformance Report (NCR) from August 2002 for a non-quality item, which implied a willful failure to follow procedures. This was identified as an Assessment Follow-up Item, A-03-OSR-RPPWTP-009-02. The other exception identified, as a Non-cited Finding, involved failure to close an NCR in accordance with the procedure. (Section 4.3)

## Table of Contents

1.0	REPORT DETAILS.....	1
1.1	Introduction.....	1
2.0	PROCUREMENT PROGRAM INSPECTION (INSPECTION TECHNICAL PROCEDURE [ITP] I-130).....	1
2.1	Implementation of the Procurement Processes (ITP-I-130) .....	2
2.1.1	Inspection Scope .....	2
2.1.2	Observations and Assessments .....	2
2.1.3	Conclusions.....	5
2.2	Supplier Performance Evaluation, Source Verification, and Receiving Inspection (ITP-I-130) .....	6
2.2.1	Inspection Scope .....	6
2.2.2	Observations and Assessments .....	6
2.2.3	Conclusions.....	9
2.3	Commercial Grade Items (ITP-I-130) .....	9
2.3.1	Inspection Scope .....	9
2.3.2	Observations and Assessments .....	9
2.3.3	Conclusions.....	10
3.0	IDENTIFICATION AND CONTROL OF ITEMS AND PROCESSES INSPECTION (ITP-I-132).....	10
3.1	Identification and Control of Items (ITP-I-132) .....	11
3.1.1	Inspection Scope .....	11
3.1.2	Observations and Assessments .....	11
3.1.3	Conclusions.....	12
3.2	Handling, Storing, and Shipping Important-to-Safety Items (ITP-I-132) .....	12
3.2.1	Inspection Scope .....	12
3.2.2	Observations and Assessments .....	13
3.2.3	Conclusions.....	14
4.0	QUALITY CONTROL PROGRAM INSPECTION (ITP-I-133) .....	15
4.1	Maintaining Qualification Documentation for Inspection and Test Personnel (ITP-I-133) .....	15
4.1.1	Inspection Scope .....	15
4.1.2	Observations and Assessments .....	15
4.1.3	Conclusions.....	16
4.2	Inspection Requirements (ITP-I-133) .....	17
4.2.1	Inspection Scope .....	17
4.2.2	Observations and Assessments .....	17
4.2.3	Conclusions.....	18
4.3	Control of Nonconforming Items, Materials, and Services (ITP-I-133) .....	18
4.3.1	Inspection Scope .....	18
4.3.2	Observations and Assessments .....	19

4.3.3	Conclusions.....	21
5.0	EXIT MEETING SUMMARY.....	21
6.0	REPORT BACKGROUND INFORMATION.....	22
6.1	Partial List of Persons Contacted.....	22
6.2	List of Inspection Procedures Used .....	22
6.3	List of Items Opened, Closed, and Discussed.....	23
6.4	List of Acronyms .....	23

## **PROCUREMENT PROGRAM, IDENTIFICATION AND CONTROL OF ITEMS AND PROCESSES PROGRAM, AND QUALITY CONTROL PROGRAM INSPECTION INSPECTION REPORT A-03-OSR-RPPWTP-009**

### **1.0 REPORT DETAILS**

#### **1.1 Introduction**

In accordance with the River Protection Project Waste Treatment and Immobilization Plant (WTP) Contract<sup>1</sup> and specifically 10 CFR 830, Subpart A, “*Quality Assurance Requirements*,” the Contractor was required to have a Quality Assurance Manual (QAM) that assigned responsibilities and authorities, defined policies and requirements, and provided for the performance and assessment of work. In addition, the Safety Requirements Document (SRD), Safety Criterion 7.3 –11, required “Procured items and services shall meet established requirements and perform as specified. Prospective suppliers shall be evaluated and selected on the basis of specified criteria. Processes to ensure that approved suppliers continue to provide acceptable items and services shall be established and implemented.” The SRD, Safety Criterion 7.3 –7, required “Inspection and testing of specified items, services, and processes shall be conducted using established acceptance and performance criteria.” The document, 24590-WTP-QAM-QA-01-001, *Quality Assurance Manual*, Revision 3, January 6, 2003, was used as the basis for this inspection.

The inspectors reviewed Bechtel National, Inc.’s (the Contractor) procurement program, identification and control of items and processes program, and quality control program implementing procedures to confirm implementation of QAM Policy Q-04.1, *Procurement Document Control*, Policy Q-07.1, *Control of Items and Services*, Policy Q-08.1, *Identification and Control of Items*, Policy Q-10.1, *Inspection*, Policy Q-13.1, *Handling, Storage, and Shipping*, and Policy Q-15.1 *Control of Nonconforming Items*.

### **2.0 PROCUREMENT PROGRAM INSPECTION (INSPECTION TECHNICAL PROCEDURE [ITP] I-130)**

The U.S. Department of Energy, Office of River Protection (ORP) previously assessed the Contractor’s procurement program and implementation of its program on June 10 – 14, 2002 and the results of the inspection were documented in inspection report IR-02-009. The inspectors found the Contractor’s procurement program complied with the requirements of the Contractor’s QAM at that time. The inspectors also found initial implementation of the program was in accordance with approved procedures and was effective in procuring important-to-safety (ITS) equipment and services. A follow-on inspection was performed on March 3 – 7, 2003 to confirm continued implementation of the Contractor’s QAM as Contractor activities for procurement of materials and services increased. The inspection and results of the inspection are documented in the following sections of this inspection report.

<sup>1</sup> Contract DE-AC27-01RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

## 2.1 Implementation of the Procurement Processes (ITP-I-130)

### 2.1.1 Inspection Scope

The inspectors examined Contractor procurement procedures, purchase orders, services contract, and associated records for procurement of materials and services. The inspectors examined the procedures and records, and interviewed responsible Contractor personnel to confirm implementation of the Contractor's QAM Policy Q-04.1, *Procurement Document Control*, and Policy Q-07.1, *Control of Items and Services*.

### 2.1.2 Observations and Assessments

The inspectors examined the following Contractor procedures and assessed continued compliance with the Contractor's QAM Policy Q-04.1 and Q-07.1 requirements for procurement of material and services. The inspectors assessed compliance with the requirements for Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents.

- 24590-WTP-3DP-G06B-00001, *Material Requisitions*, Revision 4, February 7, 2003
- 24590-WTP-GPP-GCB-00100, *Field Materials Management*, Revision 3, November 18, 2002
- 24590-WTP-3DP-G06B-00002B, *Subcontracts*, Revision 1, November 4, 2002
- 24590-WTP-G06B-00010, *Specifying Supplier Quality Assurance Program Requirements*, Revision 0, October 8, 2001
- 24590-WTP-GPP-GPX-213, *Evaluation and Selection of Potential Suppliers/Subcontractors*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPX-00301, *Solicitations*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPX-00402, *Evaluation of Proposal/Source Selection*, Revision 1, November 4, 2002
- 24590-WTP-3DP-G06B-00005, *Bid Evaluations*, Revision 1, November 4, 2002
- 24590-WTP-3DP-G06B-00011, *Evaluation of Supplier Quality Assurance Program*, Revision 0, October 15, 2001
- 24590-WTP-GPP-QA-401, *Supplier Quality Evaluation and Selection*, Revision 1, January 10, 2003

- 24590-WTP-GPP-PADC-002, *Project Records Management*, Revision 3, November 8, 2002
- 24590-WTP-GPP-GPX-00206, *Subcontractor/Purchase Order Files*, Revision 1, November 4, 2002.

The inspectors determined the above procedures continued to implement the Contractor's QAM Policy Q-04.1 and Q-07.1 requirements for Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents. The inspectors examined the following Contractor procurement records and interviewed responsible Contractor personnel to confirm implementation of the Contractor's QAM Policy Q-04.1 and Policy Q-07.1 requirements and the above implementing procedures.

E-7018 and E-8018 Welding Electrode

Field Material Requisition (FMR) 24590-QL-FMR-NWCO-00006, E-7018 and E-8018 Welding Electrode, Revision 0, February 6, 2003

Field Material Requisition (FMR) 24590-QL-FMR-NWCO-00009, E-8018 Welding Electrode, Revision 0, February 19, 2003

FMR 24590-QL-FMR-NWCO-00010, E-8018 Welding Electrode, Revision 0, February 24, 2003

American Society of Mechanical Engineers (ASME) Specification SFS-5.5, Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding, 2001 edition

Nuclear Industry Assessment Committee (NIAC) Audit Report 2001-E01, Weldstar QA Program Audit, performed by Holtec International, February 13, 2001

RPP-WTP Memorandum, CCN 024666, Supplier Quality Assurance Program Review and NIAC Audit Review Request – MR 24590-QA-FMR-NWCO-00001, Weldstar Company, Aurora, Illinois, November 21, 2001

24590-WTP-ASP-QA-02-003, Annual Supplier Performance Evaluation of Weldstar Company, February 12, 2002

Purchase Order (PO) 24590-QL-FPA-NWCO-00006, Welding Consumables, Weld Rod, Revision 0, February 21, 2003

Purchase Order (PO) 24590-QL-FPA-NWCO-00006, Welding Consumables, Weld Rod, Revision 1, February 27, 2003

Purchase Order (PO) 24590-QL-FPA-NWCO-00006, Welding Consumables, Weld Rod, Revision 2, February 27, 2003.

Concrete Penetration Encast Liners

Material Requisition (MR) 24590-QL- MRA-DD00-00002, Encast Liners L/S, Revision 1, February 6, 2002

Specification 24590-WTP-3PS-NLLR-T0001, Encast Through-Wall Liners, Revision 0, October 5, 2001

Specification 24590-WTP-3PS-SS00-T0001, Welding of Carbon Structural Steel, Revision 1, December 20, 2001

RPP-WTP Memorandum, CCN 046233, NIAC Assessment Review of Colonial Machine Company, December 23, 2002

PO 24590-QL-POA-DD00-00002, Encast Liners L/S, Revision 0, September 10, 2001.

Stainless Steel Sumps

MR 24590-QL-MRA-DD00-00001, Embed Plates, Standard, Revision 6, August 3, 2002

Engineering Specification 24590-WTP-3PS-DD00-T0001, Purchase of Standard and Non-Standard Embedded Steel Items, Revision 2, January 15, 2003

Drawing 24590-PTF-DD-S13T-00017, Pretreatment Facility Structural Concrete Embedments, Pit Details Sh 2, Revision 8, February 24, 2003

RPP-WTP Memorandum, CCN 024115, Results of Supplier Quality Assurance Manual Review – American Boiler Works Inc. Everett, Washington, October 25, 2001

Bechtel National, Inc., Supplier Survey Report 24590-WTP-SSV-QA-01-004, Revision 0, December 11, 2001

Blanket PO 24590-QL-BPO-DD00-00001, Release 22, Embed Plates, Standard, Revision 5, March 2, 2003.

Carbon Steel Wall Penetrations

MR 24590-QL-MRA-DD00-00001, Embed Plates, Standard, Revision 6, August 3, 2002

Engineering Specification 24590-WTP-3PS-DD00-T0001, Purchase of Standard and Non-Standard Embedded Steel Items, Revision 2, January 15, 2003

Drawing 24590-WTP-DD-S13T-00019, Civil/Structural Standards, Wall Penetration Details, Revision 4, February 27, 2003

RPP-WTP Memorandum, CCN 024115, Results of Supplier Quality Assurance Manual Review – American Boiler Works Inc. Everett, Washington, October 25, 2001

Bechtel National, Inc., Supplier Survey Report 24590-WTP-SSV-QA-01-004, Revision 0, December 11, 2001

Blanket PO 24590-QL-BPO-DD00-00001 Release 25, Embed Plates, Standard, Revision 8, February 21, 2003.

### Main Plant HVAC Installation

Subcontract 24590-QL-SRA-MDHM-00001 – HVAC Installation Subcontract, October 15, 2002

RPP-WTP Memorandum, CCN 035553, Quality Assurance Review for Luwa Bahnson Intermech, August 5, 2002

Bechtel National, Inc., Supplier Survey Report 24590-WTP-SSV-QA-02-226, Revision 0, September 25, 2002.

The inspectors determined the POs and subcontract listed above were prepared, reviewed and issued in accordance with Contractor procurement procedures. The Contractor specified appropriate technical and quality requirements for the material and services in the MRs, the POs, and subcontract. The inspectors noted PO 24590-QL-FPA-NWCO-00006, Revision 2, listed FMR 24590-QL-FMR-NWCO-00009 as the basis for Revision 2 of the PO. The inspectors determined FMR 24590-QL-FMR-NWCO-00009 was the basis for Revision 1 of the PO and was erroneously replicated for Revision 2 of the PO. The correct basis for Revision 2 of PO 24590-QL-FPA-NWCO-00006 was FMR 24590-QL-FMR-NWCO-00010. PO 24590-QL-FPA-NWCO-00006, Revision 2, correctly included all the requirements of FMR 24590-QL-FMR-NWCO-00010. The Contractor initiated CAR 24590-CAR-QA-03-065 and PO 24590-QL-FPA-NWCO-00006, Revision 3, to identify and correct the condition. The inspectors determined the error was minor in nature and had no effect on the technical and quality requirements of the PO.

The inspectors determined the Contractor procured material and services for the above listed purchase orders and subcontract from suppliers that had been evaluated and selected in accordance with the procurement procedures. The Contractor's QA Department Audits group audited suppliers and reviewed suppliers' QA programs in accordance with procurement and QA procedures. The Contractor selected suppliers who were included in the QA Approved Suppliers List of February 26, 2003.

### **2.1.3 Conclusions**

The Contractor purchased materials and services in accordance with engineering specifications, material and services requisitions, and requirements of QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*. Contractor purchasing activities for welding electrodes, concrete penetration liners, stainless steel sumps, carbon steel wall penetrations, and HVAC installation services included the necessary technical and quality requirements. Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents were performed in accordance with the QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*.

## **2.2 Supplier Performance Evaluation, Source Verification, and Receiving Inspection (ITP-I-130)**

### **2.2.1 Inspection Scope**

The inspectors examined Contractor procedures and records for the material and services listed in 2.1, above, and interviewed cognizant Contractor personnel. The inspectors observed material receiving and receiving inspection at the Contractor's Marshaling Yard facility. The inspectors assessed implementation of the supplier performance evaluation, source verification, and receiving inspection requirements of QAM Policy Q-07.1, *Control of Items and Services*.

### **2.2.2 Observations and Assessments**

The inspectors examined the following Contractor procedures and assessed continued compliance with QAM Policy Q-07.1 requirements for procurement of material and services. The inspectors assessed compliance with the requirements for Contractor supplier performance evaluations, source verifications, acceptance of items and services, acceptance of supplier's Certificate of Conformances, receiving inspections, and Contractor control of supplier nonconformances.

- 24590-WTP-3DP-G04B-00058, *Supplier Engineering and Quality Verification Documents*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GCB-00100, *Field Materials Management*, Revision 3, November 18, 2002
- 24590-WTP-3DP-G04B-00061, *Disposition of Nonconformance Reports*, Revision 3, February 7, 2003
- 24590-WTP-3DP-G04B-00063A, *Supplier Deviation Disposition Request*, Revision 3, February 7, 2003
- 24590-WTP-GPP-CON-7101, *Construction Quality Control Program*, Revision 1, June 3, 2002
- 24590-WTP-GPP-CON-7104, *Nonconformance Reporting and Control*, Revision 2, January 2, 2003
- 24590-WTP-GPP-GPA-00300, *Property Records*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPA-00400, *Receipt of Property*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPA-00500, *Storage and Issue*, Revision 1, November 4, 2002

- 24590-WTP-GPP-PADC-002, *Project Record Management*, Revision 3, November 8, 2002
- 24590-WTP-GPP-GPQ-00100, *Supplier Quality*, Revision 2, November 4, 2002
- 24590-WTP-GPP-CON-4101, *Construction Subcontract Management*, Revision 1, November 4, 2002.

The inspectors determined the above procedures continued to implement the QAM Policy Q-07.1 requirements for Contractor supplier performance evaluation, source verification, acceptance of items and services, acceptance of supplier's Certificate of Conformances, receiving inspection, and Contractor control of supplier nonconformances. The inspectors examined the following Contractor procurement records and interviewed responsible Contractor personnel to confirm implementation of the requirements of QAM Policy Q-07.1, and the above implementing procedures.

#### E-7018 and E-8018 Welding Electrode

Material Receiving Report (MRR) 07499, March 4, 2003

Material Receiving Instruction (MRI) 25490-WTP-MRI-W-03-0002, Weld Electrode, Revision 0, February 5, 2003

Weldstar Company Certificate of Compliance, with Certified Material Test Reports and Material Safety Data Sheets, February 19, 2003.

Nuclear Industry Assessment Committee (NIAC) Audit Report 2001-E01, Weldstar QA Program November 21, 2001.

#### Concrete Penetration Encast Liners

MRR 06220, December 19, 2002

MRI 25490-WTP-MRI-M-02-0010, Encast Liners, Revision 1, December 4, 2002 (Not yet completed as of March 7, 2003)

Form G-321-V, Supplier Document Submittal Requirements, Encast Liners L/S QL-2 MH011 (VFL1), including Certified Material Test Reports, December 6, 2002

Surveillance Inspection Report (SIR) 24590-QI-YQA-DD00-20010, Encast Liners, released five 10.5 X 48" SS Encast Liners for shipment, December 6, 2002

Nonconformance Report 24590-WTP-NCR-CON-02-254, 10 ½" Bore 48" Stainless Steel Encast Liner, December 31, 2002.

Stainless Steel Sumps

MRR 07291, February 18, 2003

MRI 25490-WTP-MRI-C-02-0007, Standard Embedded Steel, Revision 3, February 18, 2003

Form G-321-V, Supplier Document Submittal Requirements, Embed Plates, Standard, including Certified Material Test Reports, February 13, 2003

SIR 24590-QI-YQA-DD00-10044, Embed Plates, Standard, released seven 30" Sumps for shipment, February 22, 2003.

Carbon Steel Wall Penetrations

MRR 07215, February 17, 2003

MRI 25490-WTP-MRI-C-02-0007, Standard Embedded Steel, Revision 3, February 17, 2003

Form G-321-V, Supplier Document Submittal Requirements, Embed Plates, Standard, including Certified Material Test Reports, February 6, 2003

SIR 24590-QI-YQA-DD00-10043, Embed Plates, Standard, released four PSH4X48 Wall Sleeves for shipment, February 10, 2003.

The inspectors determined the Contractor performed appropriate source evaluations, source inspections, and receiving inspections in accordance with the listed procedures for the received material. The inspectors determined the Contractor received certificates of conformance from suppliers of the material and reviewed the certificates in accordance with the material receiving inspection instructions. The inspectors noted the Contractor initiated Nonconformance Report (NCR) 24590-WTP-NCR-CON-02-254 and had not accepted the concrete encast liners listed above because of material discrepancies noted during receiving inspection.

The *Field Materials Management* procedure provided requirements for the performance of commercial receipt and quality inspection at the Marshaling Yard and storing and maintaining items until issued for use. The inspectors discussed with Contractor Marshaling Yard personnel the receiving, identification, handling, and storage of materials. The inspectors observed receiving inspection performed by a Contractor QC inspector on a delivery of 1500 pounds of weld rod electrodes. The inspectors observed the receiving inspection was performed in accordance with the *Field Materials Management* procedure.

The inspectors examined the following Supplier Deviation Disposition Requests (SDDR) to assess compliance with the Contractors *Supplier Deviation Disposition Request* procedure. The inspectors determined the SDDRs were submitted by suppliers, and evaluated and dispositioned by the Contractor in accordance with the procedure.

- 24590-WTP-SDDR-PROC-02-0078, Embed Plates, Revision 0, August 28, 2002
- 24590-WTP-SDDR-PROC-02-0077, Embeds, Revision 0, August 21, 2002

- 24590-WTP-SDDR-PROC-02-0076, Reinforcing Steel, Revision 0, August 7, 2002
- 24590-WTP-SDDR-PROC-02-0075, Reinforcing Steel, Revision 0, August 7, 2002
- 24590-WTP-SDDR-PROC-02-0074, Sump, Revision 0, August 1, 2002.

### 2.2.3 Conclusions

The Contractor performed appropriate supplier performance evaluations, source verifications, and receiving inspections of welding electrodes, concrete penetration liners, stainless steel sumps, and carbon steel wall penetrations as required by QAM Policy Q-07.1, *Control of Items and Services*. The Contractor appropriately processed, evaluated and dispositioned supplier nonconformances as required by QAM Policy Q-07.1, *Control of Items and Services*.

## 2.3 Commercial Grade Items (ITP-I-130)

### 2.3.1 Inspection Scope

The Contractor's commercial grade dedication process and procedure were previously reviewed and determined to meet the requirements of the Contractor's QAM Policy Q-07.1, *Control of Items and Services* (ORP Inspection Report IR-02-009). The inspectors examined a commercial grade dedication procurement package and interviewed cognizant Contractor personnel to assess implementation of the procedure and the Contractor's QAM Policy Q-07.1 requirements.

### 2.3.2 Observations and Assessments

The inspectors examined Contractor procedure 24590-WTP-3DP-G04T-00909, *Commercial Grade Dedication*, Revision 0, June 11, 2002. The inspectors determined the Contractor had made no changes to the procedure and continued to meet *Quality Assurance Manual* Policy Q-07.1 requirements as documented in ORP Inspection Report IR-02-009. The *Commercial Grade Dedication* procedure required the Contractor's engineers to establish critical attributes of material necessary to perform its intended function and meet design requirements. The procedure also required engineering to establish inspections and tests necessary to confirm critical attributes of the material. The inspectors determined the *Commercial Grade Dedication* procedure met *Quality Assurance Manual* Policy Q-07.1 requirements.

The inspectors examined MR 24590-CD-MRA-PH01-00001, *Pipe Supports - Standard/Engineered, Material and Fabrication (CD)*, (not yet issued). The inspectors interviewed cognizant Contractor personnel to assess implementation of the *Commercial Grade Dedication* procedure. The MR included provisions for purchase of commercial grade pipe supports, evaluation, and acceptance criteria, for use of the commercial grade pipe supports in Quality Level 1, 2, and 3 applications. Contractor engineers established critical attributes for the pipe support and the necessary inspections and tests to verify the critical attributes had been obtained. The Contractor informed the inspectors the MR and commercial grade evaluation document were still in the review and comment stage and were not yet approved documents. The Contractor also informed the inspectors commercial grade dedication of pipe support

materials was being evaluated to preclude the inter-mixing of commercial and quality grade pipe supports. All pipe support material would be procured as commercial grade and the dedication process applied by the Contractor on material for use in quality applications.

Though the inspectors determined the Contractor evaluation was being performed in accordance with the *Commercial Grade Dedication* procedure for the procurement of commercial grade pipe supports, the evaluation was still in the review process during the ORP inspection. The Contractor had not yet established the critical attributes of the pipe supports needed to if ascertain design functions would be met. The inspections and tests needed to verify those critical attributes had also not yet been established in an approved document. The inspectors opened an Assessment Follow-up Item to perform further ORP inspection of the completed evaluation package and to ascertain if appropriate critical attributes were identified for all important-to-safety (ITS) applications of the pipe supports. The follow-up inspection will also ascertain if appropriate inspections and acceptance criteria were specified for the critical attributes of various types of pipe supports (i.e., deadweight, thermal, and seismic). Follow-up to verify this will be tracked as Assessment Follow-up Item (AFI) A-03-OSR-RPPWTP-009-A01.

### **2.3.3 Conclusions**

The Contractor was appropriately performing an evaluation for procurement of commercial grade pipe supports, and subsequent use in important-to-safety applications, in accordance with QAM Policy Q-07.1, *Control of Items and Services*. The Contractor's evaluation was not finalized during the inspection. The inspectors opened an Assessment Follow-up Item, A-03-OSR-RPPWTP-009-A01, to perform further ORP inspection of the completed evaluation package to ascertain if appropriate critical attributes were identified for all important-to-safety (ITS) applications of the pipe supports. The follow-up inspection will also ascertain if appropriate inspections and acceptance criteria were specified for the critical attributes of various types (i.e., deadweight, thermal, and seismic) of pipe supports

## **3.0 IDENTIFICATION AND CONTROL OF ITEMS AND PROCESSES INSPECTION (ITP-I-132)**

The ORP performed a programmatic review of the Contractor's Identification and Control of Items and Processes program from June 10 - 14, 2002. The results of the inspection were documented in inspection report IR-02-009. The results were limited because the construction authorization at the time of the inspection allowed very few ITS activities. However, based on the program and activities reviewed, the inspection concluded the Contractor's Identification and Control of Items and Processes program was in compliance with applicable requirements. This current inspection was a follow-on inspection to confirm continued implementation of the Identification and Control of Items and Processes program. The inspection focused on reviewing identification and control of items during receiving and issue at the site.

### 3.1 Identification and Control of Items (ITP-I-132)

#### 3.1.1 Inspection Scope

The inspectors examined Contractor procedures to confirm implementation of the QAM Policy Q-08.1, *Identification and Control of Items* requirements. The inspectors interviewed Contractor warehouse and QC personnel, and toured material receiving, holding, and storage areas to verify implementation of the Contractor procedures and QAM Policy Q-08.1 requirements for identification and control of items.

#### 3.1.2 Observations and Assessments

The Contractor's QAM Policy Q-08.1, Section 3, specified the Contractor's requirements for identification and control of items. The inspectors reviewed the Contractor's *Field Materials Management* procedure to determine if the Contractor's QAM, Policy Q-08.1, Section 3, identification requirements were appropriately prescribed in the procedure. The inspectors determined the *Field Materials Management* procedure provided requirements for identifying items upon initial receipt at the Marshaling Yard and maintaining identification and control of items up to and including the installation and use of the items. The inspectors determined the *Field Materials Management* procedure implemented the Contractor's QAM Policy Q-08.1, Section 3, requirements for identification and control of items.

The inspectors discussed with Contractor Marshaling Yard QC and purchasing personnel the receiving, identification, handling, and storage of materials. Contractor personnel informed the inspectors the materials for the Waste Treatment Plant were processed through the Contractor's materials Marshaling Yard. The inspectors performed a walk through inspection of the Marshaling Yard to assess compliance with the *Field Materials Management* procedure. The inspectors observed reinforcing steel bars, embeds, and hermetically sealed cans of welding electrodes, as well as other ITS items, at the Marshaling Yard. The inspectors observed the following:

- The reinforcing steel bars were appropriately identified, tagged and stored in a fenced area in the yard, and at a secured fenced-in area adjacent to the railroad tracks, as required by the *Field Materials Management* procedure. The reinforcing steel bars were identified with the manufacturers identification tag and one green QC acceptance tag per bundle in accordance with the procedure.
- The embeds were appropriately identified, tagged and stored on pallets in a fenced area in the Marshaling Yard in accordance with the *Field Materials Management* procedure. Embeds were identified by one manufacturer's identification tag and one green QC acceptance tag per pallet. Each piece was identified by means of stamped manufacturer's identification and field-applied markings made with metal markers as required by the *Field Materials Management* procedure.
- The cans of welding electrodes were in an indoor receiving area and were identified with a purchase order and corresponding MRR number as required by the *Field Materials*

*Management* procedure. QC had not yet performed receiving inspection for the cans of welding electrodes. The cans of welding electrodes were identified and controlled in accordance with the *Field Materials Management* procedure.

The inspectors observed segregated areas had been established within the Marshaling Yard and in the warehouse for receiving and inspecting material. The Contractor designated two segregated areas for non-conforming material. The Contractor used yellow “Hold” tape to identify large items offloaded within the Marshaling Yard fenced area, such as sections of C-5 ductwork, that had not yet been QC accepted. Contractor personnel informed the inspectors the items could not be transported from the Marshaling Yard for use at the WTP until QC receipt inspected the items and tagged the items with acceptance tags.

At the time of the inspection the Contractor had received no Quality Assurance Requirements and Description (QARD)-related items. As a result, the inspectors were not able to verify the identification and control of QARD-related items. In addition to the normal QAM requirements, the specific QA requirements for the items and activities critical to waste acceptance specification compliance were applicable. As the project proceeds QARD-related items described in 24590-HLW-RPT-PR-01-001, *Waste Acceptance Impacting Items and Activities*, Revision 1, are required to be procured, received, identified, and controlled.

The inspectors verified items with limited calendar or operating life (e.g., adhesives, Amercoat, joining compound, Hydrocide 700B) were identified and controlled. The inspectors reviewed a spreadsheet titled, “Shelf Life” containing nine entries for items with lifetimes of limited duration. The Contractor tracked the items by description, part numbers, quantity, and expiration date.

### **3.1.3 Conclusions**

The Contractor's *Field Materials Management* procedure met the identification and control of items requirements of QAM Policy Q-07.1, *Control of Items and Services*. The Contractor identified and controlled its ITS reinforcing steel bars, embeds, and hermetically sealed cans of welding electrodes, in accordance with the requirements of QAM Policy Q-07.1, *Control of Items and Services*.

## **3.2 Handling, Storing, and Shipping Important-to-Safety Items (ITP-I-132)**

### **3.2.1 Inspection Scope**

The inspectors assessed the adequacy and effectiveness of the Contractor’s procedures to verify compliance with the Contractor’s QAM Policy Q-13.1, *Handling, Storage, and Shipping* requirements. The inspectors interviewed Contractor warehouse, QC, and Field Engineering personnel, toured material receiving, holding, storage, disbursement, and lay down areas, and reviewed applicable procedures, to verify the Contractor handled, stored, and shipped ITS items in accordance with the requirements of the implementing procedures and the Contractor’s QAM Policy Q-13.1, *Handling, Storage, and Shipping*.

### 3.2.2 Observations and Assessments

The Contractor's QAM Policy Q-13.1, *Handling, Storage, and Shipping*, Section 3, specified the requirements for handling, storing, and shipping of items. The inspectors reviewed the Contractor's *Field Materials Management* procedures and procedure 24590-WTP-GPP-GPA-00500, *Storage and Issue*, Revision 1, to determine if the Contractor's QAM Policy Q-13.1, Section 3, Revision 3, handling, storage, and issue requirements were appropriately prescribed in the procedures.

The inspectors determined the *Field Materials Management* procedure provided requirements for identifying items upon initial receipt at the Marshaling Yard, and maintaining identification and traceability of items up to and including the installation and use of the items. The inspectors determined the *Storage and Issue* procedure provided requirements for the protection of items in storage facilities, segregation of government property, and the records requirements for property sent out for maintenance and/or calibration.

The inspectors selected three items (rebar, embeds, and welding rod electrodes) and these were evaluated for control and identification to verify handling, storage, and shipping processes were effective and QAM requirements were met.

The inspectors interviewed the QC receiving inspectors and engineer responsible for site rebar, toured the rebar storage and bending area, and observed rebar installation. The inspectors were told the rebar was QC accepted at the Marshaling Yard, green tagged, and later moved to the WTP site, as it is needed. The inspectors observed the bundles of rebar had the manufacturer's identification tags and QC green tags still intact within the rebar bending area. Each individual rebar was stamped with the manufacturer's identifying information.

The inspectors interviewed the QC receiving inspectors and engineer responsible for the site embeds, toured embed storage/lay down areas, and observed embeds in place and being installed by craft. Each embed pallet observed had a manufacturer's identification tag and a QC acceptance tag. Furthermore, each embed was etched with a stock code identifier from the manufacturer.

The inspectors interviewed QC receiving inspectors and two engineers responsible for site welding and distribution of welding electrodes. The inspectors reviewed the Contractor's Welding Specification 24590-WTP-MN-CON-01-001-05-01, *Welding Filler Metal Control*. The inspectors toured the welding rod issue room, observed the distribution of welding electrodes, and inspected the flammable item storage cabinet in the rod issue room. The inspectors observed the Contractor employees verifying the identification of welding electrodes from the manufacturers unopened container, opening a container and colorcoding the electrodes prior to placement in the electrode storage ovens.

The inspectors selected a spray can of yellow paint from the flammable item storage cabinet to verify welding electrode color coding was performed in accordance with the requirements of the Contractor's *Welding Filler Metal Control* specification. The selected paint used by the Contractor to identify welding electrodes was a Krylon's Industrial Paints/Farm and Implement Paints. Section 5.2 of the Contractor's *Welding Filler Metal Control* specification required

“Paint used for color coding coated electrodes shall be capable of withstanding temperatures of 300 °F for prolonged periods of time.” The Contractor had no documentation of the temperature capability for the paint selected by the inspectors. The inspectors contacted the paint manufacturer on Friday, March 7, 2003, and were informed the paint had a dry heat resistance of 120 degrees Fahrenheit. The inspectors determined the Contractor was not using paint capable of withstanding temperatures of 300 degrees F as required by the Contractor’s *Welding Filler Metal Control* specification.

The inspectors reviewed the significance of the procedural violation associated with the use of incorrect paint to mark weld electrodes. The inspectors determined the use of yellow paint to identify E316L16 welding electrodes was an aid for rod room attendants to prevent accidental co-mingling, issue, and use of incorrect electrodes. The type of electrode was marked by the manufacturer on each electrode. In the event the yellow paint was not discernible the type of electrode could still be determined by reading the print on the electrode. If the paint faded the rod room attendant could verify the identification of the electrode type, and repaint the end of the electrode. Since the yellow paint was added as an aid, the procedural violation associated with the use of incorrect paint to mark weld electrodes was of minor safety significance. The Contractor issued a Corrective Action Report (CAR), 24590-WTP-CAR-QA-03-078, to correct the condition. The CAR stated the paint had been removed from service and the Contractor has been monitoring electrode color coding daily for deterioration. The inspectors identified the failure to follow the Contractor’s *Welding Filler Metal Control* specification as a Non-cited Finding.

The Contractor had an area in the Marshaling Yard warehouse for Level B storage of material requiring environmental protection in accordance with American National Standard Institute/American Society of Mechanical Engineers (ANSI/ASME) NQA-2, *Quality Assurance Requirements for Nuclear Power Plants*. The inspectors observed the storage area was established indoors and was equipped for uniform heating and temperature controls to prevent condensation and corrosion. The Contractor monitored ambient temperatures in the Level B storage area by means of a calibrated Supco Model CR87B temperature recorder. The inspectors observed temperature readings on the recorder were within the 40 °F minimum and 140 °F maximum temperature required by ANSI/ASME NQA-2 for Level B storage. The Level B storage area contained a special cabinet housing NDE Welded Flaw calibration test blocks. The inspectors randomly selected two of six cabinet drawers to verify the calibration test blocks matched the description and number provided on the kick and count inventory sheets located in the drawers. The inspectors confirmed that the drawer contents were segregated by size and type as described in the shipping documents and were as described on the kick and count sheets.

### 3.2.3 Conclusions

The Contractor incorporated the requirements of QAM Policy-13.1, *Handling, Storage, and Shipping* in its *Field Materials Management, Storage and Issue*, and *Welding Filler Metal Control* procedures and specifications. The Contractor implemented the requirements of the procedures and specification and received, identified, handled, and stored important-to-safety items in accordance with QAM Policy Q-13.1, *Handling, Storage, and Shipping*, with one exception. Contractor personnel color coded welding electrodes with paint that did not meet the

*Welding Filler Metal Control* requirements. The inspectors concluded the failure was of minor safety significance and identified the failure as a Non-cited Finding.

#### **4.0 QUALITY CONTROL PROGRAM INSPECTION (ITP-I-133)**

The ORP performed a programmatic review of the Contractor's QC program from June 10 - 14, 2002. The results of the inspection were documented in inspection report IR-02-009. The results were limited because the construction authorization at the time of the inspection allowed very few ITS activities. However, based on the program and activities reviewed, the inspection concluded the Contractor's QC program was in compliance with applicable requirements, staff were adequately qualified and trained, and QC work performed to that date was in accordance with the QC program. The current inspection was a follow-on inspection to confirm continued implementation of the QC program. The inspection focused on reviewing completed QC inspection reports, nonconformance reports (NCRs), and interviews with QC personnel.

#### **4.1 Maintaining Qualification Documentation for Inspection and Test Personnel (ITP-I-133)**

##### **4.1.1 Inspection Scope**

The inspectors assessed the Contractor's implementation of its program and procedures to verify it maintained qualification records and documentation for its inspection and test personnel, as required by QAM Policy Q-10.1, *Inspection*. This assessment included a review of personnel training records and Certificates of Qualification, discussions with Contractor managers regarding testing methodologies and examinations, maintenance of qualifications, and physical requirements.

##### **4.1.2 Observations and Assessments**

The Contractor's requirements for certification of QC inspection and test personnel were documented in Contractor procedure 24590-WTP-GPP-CON-7106A, *Quality Control Personnel Certification*, Revision 0. The inspectors discussed implementation of the procedure and qualification documentation with the Deputy Field Quality Control Manager (FQCM). The Deputy FQCM stated he was certified as a Quality Level (QL) III inspector and examined and certified the initial lead inspectors in QL-III Receiving, Welding, Piping, Mechanical Equipment, and Electrical inspectors. Once certified, the lead inspectors evaluated education and experience of each QC engineer for their disciplines, examined them, and recommended them for certification as QL-II inspectors. The Deputy FQCM then certified them. The Contractor did not have or use QL-I inspectors. The Deputy FQCM stated the Contractor's corporate office personnel certified Nondestructive Examination (NDE) personnel.

The Deputy FQCM stated the "Certificate of Qualification" documented inspectors' qualifications. QL-II inspectors were required to have a passing grade of 80% on written examinations, while QL-III inspectors required 90%. The certificate only qualified an individual

for the particular discipline for which the individual was tested. The certificate did not allow the individual to actually inspect until “endorsements” from a QL-III inspector were obtained; the endorsements were documented on the back of the form and listed specific activities in the discipline the individual was qualified to inspect. Endorsement categories were listed in Appendix 1 of the Contractor’s *Quality Control Personnel Certification* procedure. The actions described above met the intent and requirements of the procedure. As noted below, the inspectors verified implementation of the requirements by reviewing training records.

The Deputy FQCM informed the inspectors no inspection and test personnel had been removed from performing in an area of certification; all of them had maintained their capabilities in accordance with the *Quality Control Personnel Certification* requirements. As noted below, the inspectors verified this by reviewing training records. The *Quality Control Personnel Certification* procedure stated a certification was valid for three years with annual reviews and annual eye examinations.

The inspectors discussed implementation of the QL-II examination process with the Deputy FQCM and a lead QL-III inspector. Examination questions were stored on a password protected computer database accessible only to the Deputy FQCM and QL-III inspectors. The DOE inspectors observed the Deputy FQCM entering the database with a protected password and were shown the various categories of questions. Examinations were generated by randomly selecting 25 questions from the database and the examinations proctored. After the examinations were completed and graded, any incorrect answers were reviewed with the students. The DOE inspectors verified this process with a lead QL-III inspector. QL-II inspectors were allowed three attempts to pass the test. To date, all inspectors passed on the first try. The DOE inspectors verified this by review of training records.

As noted above, to verify the Contractor had implemented the requirements, the inspectors obtained the training folder that contained all of the training records for QC inspectors. The DOE inspectors then reviewed the records of eight randomly selected QL-II inspectors from recently completed QC inspections and verified: all of the inspectors had met the requirements for a passing grade on the written examinations; their Certificates of Qualification included “endorsements” for the activities they were authorized to inspect; none of the inspectors had been removed from inspection activities and there was no evidence in the folder that any inspector had been removed; and all of them were qualified for the inspection work they performed. Additionally, the inspectors reviewed Certificates of Qualification for five QL-III inspectors and 17 other QL-II inspectors and verified all of the certificates were current and valid with evidence of annual reviews and eye examinations.

#### **4.1.3 Conclusions**

The Contractor qualified and certified QC inspectors in accordance with QAM Policy Q-10.1, *Inspection*. The Contractor documented QC inspector qualifications and certifications in accordance with QAM Policy Q-10.1, *Inspection*.

## 4.2 Inspection Requirements (ITP-I-133)

### 4.2.1 Inspection Scope

The inspectors examined the Contractor's programs, procedures, and records to assess implementation of the Contractors QAM Policy Q-10.1, *Inspection* requirements for QC inspections. The inspectors also interviewed Contractor personnel to ascertain their understanding of the inspection process and requirements.

### 4.2.2 Observations and Assessments

The inspectors examined Contractor procedures and records and discussed them with Contractor personnel to ascertain (1) QC inspections required to verify conformance of an item or activity to specified requirements were planned and executed, (2) characteristics subject to inspection and inspection methods were properly specified and inspection results documented, (3) inspections were performed by qualified persons and the persons performing the inspections were sufficiently independent from the work being inspected and did not report directly to the immediate supervisor responsible for the item being examined, and (4) inspection requirements and acceptance criteria were based on approved design or technical documents. The procedures and records reviewed by the inspectors, and the results of the reviews are discussed below.

The inspectors reviewed procedure 24590-WTP-GPP-CON-3203, *Concrete Operations (Including Supply)*, Revision 3. The procedure addressed operations associated with concrete batching including Field Engineering and Quality Control inspections in accordance with 24590-WTP-GPP-CON-7101, *Construction Quality Control Program*. Section 3.11 of *Concrete Operations* discussed "Inspection and Testing" and included a detailed listing of QC in-process and final inspection requirements. Appendix 3 of the procedure was a "Concrete Pour Card" on which QC inspectors documented inspection activities. The QC initials in block 42, as noted on the instructions for the card, confirmed all curing and structural post-placement repairs were completed in compliance with all applicable design documents and specifications. The inspectors reviewed completed Concrete Pour Cards for two concrete pours (PTF-C-0004A and LAW-0006) and found them properly completed to indicate the pours were acceptable. The inspectors also verified the QC inspectors were on the qualified and certified list.

The inspectors reviewed a QC record for inspections of work package LAW-C-E-0001 (a QL-2 activity for backfilling the low activity waste tower crane foundation and concrete base mat). The QC inspection record (that also served as the QC "plan") described the backfill location; listed applicable drawings; described items to be inspected; and documented the inspection results. The record also contained acceptance criteria that were based on approved technical documents (ASTM D 1557). Furthermore, the DOE inspectors verified the QC inspectors who performed the inspections were qualified to perform the inspections and were independent from the work being inspected.

The inspectors reviewed a "Special Instruction" for NCR 24590-WTP-NCR-CON-02-176 pertaining to improper installation of a weld. The special instructions satisfied the requirements of the *Nonconformance Reporting and Control* procedure, section 3.3.5.1, which required repair

and rework dispositions for NCRs be forwarded to the responsible field engineer for incorporation into applicable special instructions, and implementation of the disposition in accordance with construction procedures. The special instructions: described the item; contained a list of specific reference documents; and was approved by the FQCM and the Field Engineering Manager. It also contained 10 “general notes” that included, among other things, applicable approved design drawings and specifications and procedures. The completed special instruction also included signed inspection records showing the work was done as required.

The inspectors reviewed nine final inspection records for planned and executed QL-1 welding on the Pretreatment Facility (PTF). In all cases, the records (labeled “Field Welding Checklist, Form WR-25) specified inspection methods, documented the results, and had appropriate QC signoffs by qualified and certified QC inspectors as required by the QC inspection procedures. The Contractor considered the forms “Final Inspection Plans” as required by QAM Policy Q-10.1, Section 3.6. The inspection records also included acceptance criteria based on approved design documents.

The inspectors reviewed six final inspection records for QL-1 welding on HLW related work. In two cases (24590-WTP-FWCL-CON-02-059 and 24590-WTP-FWCL-CON-02-003) there were references to NCRs. The inspectors reviewed the history of the NCRs and determined they were properly dispositioned and closed before the welding and final inspections were completed. All of the records indicated the inspections were planned and executed properly; inspection methods were properly specified and inspection results documented; qualified personnel performed the inspections; and acceptance criteria were based on approved design or technical documents.

The inspectors reviewed a final inspection result for QL-1 welding for HLW anchor bolts welded on 9/9/02 (24590-WTP-FWCL-CON-02-048). A footnote dated 11/13/02 referenced NCR 24590-WTP-NCR-CON-02-156 and stated it was closed and no nonconformance existed. The inspectors verified the NCR was properly dispositioned and closed before the final inspection was completed.

### **4.2.3 Conclusions**

The inspectors concluded the Contractor’s program for developing and documenting inspection requirements, and implementation of the program, continued to meet the requirements of the QAM Policy Q-10.1, *Inspection*.

## **4.3 Control of Nonconforming Items, Materials, and Services (ITP-I-133)**

### **4.3.1 Inspection Scope**

The inspectors assessed the Contractor’s implementation of nonconformance reporting and control procedures to verify nonconformances were identified, controlled, documented, evaluated and dispositioned as required by the QAM Policy Q-15.1, *Control of Nonconforming Items*. The inspectors reviewed procedures and nonconformance reports to verify the Contractor implemented its QC procedures. The inspectors interviewed appropriate Contractor QC

personnel to verify their knowledge and understanding of the requirements, and conducted in-field observations of segregation and disposition of NCR items.

#### 4.3.2 Observations and Assessments

The inspectors interviewed Contractor QC and Field Engineering personnel to determine their knowledge with regard to documentation, evaluation, identification, and control of nonconforming items, materials, and services. The inspectors determined the personnel were knowledgeable of the NCR process and understood the purpose and disposition of NCRs. They were aware of their responsibilities to document nonconforming conditions, and that work could not be completed until outstanding NCRs were resolved.

The inspectors viewed control of a number of different types of nonconforming items (e.g., C5 ducting and embeds) stored in the Marshaling Yard and eight similar nonconforming items installed at the WTP construction site. At the Marshaling Yard, the inspectors determined nonconforming items were controlled to prevent inadvertent installation or use through use of red NCR tagging or yellow tape, or segregation of the items in a separate holding area controlled by fencing and keys until disposition of the nonconformance. At the WTP construction site, the inspectors determined nonconforming items were controlled until disposition of the nonconformance by use of red NCR tagging containing legible identification and documentation of the nonconforming item.

The Contractor's *Nonconformance Reporting & Control* procedure governed the control of nonconforming items. The procedure described the process for initiating, controlling, dispositioning, implementing, and closing NCRs. It was applicable to QL and permanent plant and plant-affecting items determined to be suspect or counterfeit regardless of quality level. It stated non-QL nonconforming conditions previously documented on NCRs in accordance with the procedure would be processed in accordance with new procedure 24590-WTP-GPP-CON-3106, *Construction Deficiency Reporting and Control*, Revision 0, January 2, 2003.

The Contractor's *Nonconformance Reporting & Control* procedure contained a "Nonconformance Report" form and controlled the process. It required the FQCM to validate the NCR; the Field Engineering Manager (FEM) to recommend a disposition action; the Design Engineering Manager (DEM) to approve a final disposition action, as appropriate; and Field Engineering and Quality Control to verify appropriate actions were taken before they approved closure. Section 3.3.8.1 of the procedure discussed Field Engineering verification and stated the signature meant the Field Engineer (FE) had verified the NCR disposition had been implemented, Field Engineering inspections were completed, and the NCR was ready for QC closure verification. The instructions for completing the NCR form stated the "QC Verified" signature meant the following:

- For *Reject* disposition, the item was removed from the Project Inventory System and transferred to the Property Organization or defaced and tags removed
- For *Rework/Repair* disposition, required QC inspections were completed and tags removed

- For *Use-as-is* disposition, hold tags were removed and open work packages were closed
- For *Other* disposition, disposition was implemented, required QC inspections were performed, and hold tags removed.

The inspectors discussed the verification process with the Deputy FQCM and two field engineers who confirmed the process stated above. They further stated QC verification did not necessarily mean the verifier actually had reviewed all of the documentation that went into closure. They said, for example, the verifier could have received input from the QC Lead the work was done and verified. This would constitute “verification” and would have been sufficient for closure. In other cases, the verifier personally could have reviewed final inspection results. The inspectors determined this was consistent with the procedure discussed above.

The inspectors also discussed implementation of the QC program and NCR control with the FQCM and some of the field engineers. They stated there was no time limit for processing NCRs and in reality, closure was schedule driven. The rationale was, if there were any outstanding NCRs for any project, the work could not be completed until the NCRs were dispositioned and closed. The FQCM discussed briefly an NCR status report that showed 22 NCRs had been open greater than 180 days and of those, 15 were dispositioned and seven had not yet been dispositioned. He also showed 21 had been open between 91-180 days; 11 of those had been dispositioned and 10 had not been dispositioned.

To track NCRs the Contractor used an NCR log (a limited access database). NCRs were numbered and entered into the database by QC Lead Inspectors after the NCRs were validated. An administrative staff person updated the log, through closure. The inspectors reviewed the log, which appeared up-to-date, and found it a good tool for tracking NCRs.

Using the log as a guide, the inspectors randomly selected for review 30 NCRs (1 QL-2 [the only QL-2 on the list for the time period chosen], 28 QL-1, and 1 non-Q). The inspectors assessed whether (1) disposition was subject to design control measures commensurate with those applied to the original design, (2) changes were required to reflect as-built conditions, (3) disposition of items needing re-work or repair contained requirements to re-examine the item to verify acceptability, and (4) recommended dispositions were evaluated before acceptance or change. The inspectors observed a closed NCR's QL-1 released equipment (i.e., HLW Melter Cave #1 - Embedded C5 Duct) for NCR 24590-WTP-NCR-CON-02-115 at the WTP construction site and found the ducting nonconformance repaired (i.e., dispositioned) in accordance with the NCR's "Field Engineering Recommended Disposition." The inspectors also discussed several of the NCRs with cognizant Field Engineers who verified, by the discussions, they were knowledgeable of the NCR process for control of nonconforming items. The inspectors further verified this by noting Field Engineers originated several of the NCRs. With the exception of the two NCRs described in the following two paragraphs, the NCRs met the requirements of the NCR procedure and program.

The non-Q NCR 24590-WTP-NCR-CON-02-242 was reviewed because of wording in an attached Discrepancy Notice from a subcontractor implied a willful failure to follow procedures. The inspectors discussed this with the FQCM and others and as a result, the Contractor opened a

tracking action to investigate it (24590-WTP-RITS-QAIS-03-234). The action had two parts: 1) the testing service daily report and Discrepancy Notice attached to the NCR indicated an individual may have chosen to bypass a required test; 2) the NCR was written approximately four months after the date of the subcontractor Discrepancy Notice, a time delay not within normal expectations for timeliness. The Contractor's target date for closure of the issue was 3/28/03. The inspectors opened an Assessment Follow-up Item (AFI) A-03-OSR-RPPWTP-009-A02, for DOE review of the Contractor's investigation and corrective actions.

The inspectors identified closed NCR 24590-WTP-NCR-CON-02-156 did not have the "QC Verified" signature as required by the Contractor's *Nonconformance Reporting and Control* procedure. This NCR was issued for QL-1 items (i.e., ASTM A563 GR A nuts welded to carbon steel washers). The inspectors notified the Contractor's FQCM who immediately issued a Corrective Action Report, 24590-WTP-CAR-QA-03-059, to determine the extent of and correct the condition. During the Contractor's preliminary determination of the extent of the condition, it identified another NCR (24590-WTP-NCR-CON-02-089) that did not meet the requirement. This NCR was issued for non-QL items (i.e., pre-cast concrete manholes). The Contractor's corrective actions included retrieval of the NCRs from document control, QC validation of completion of the NCR recommended activities, and corresponding completion of the "QC Verified" blocks. Based on these corrective actions, the inspectors identified this failure to follow procedures as a Non-cited Finding.

Four of the 30 NCRs reviewed by the inspectors had been cancelled (24590-WTP-NCR-CON-03-018; -03-005; -02-237; and -02-191). All of the cancellations were in accordance with Section 3.3.2.6 of the *Nonconformance Reporting & Control* procedure regarding the process for cancellation of validated NCRs. The inspectors determined all of the other NCRs had the nonconforming items appropriately identified and documented, appropriate evaluations were performed; appropriate dispositions were proposed and resolved by Design Engineering; and appropriate organizations were notified in accordance with QAM Policy Q-15.1.

### 4.3.3 Conclusions

The Contractor identified, controlled, documented, evaluated and dispositioned nonconforming items in accordance with QAM Policy Q-15.1, *Control of Nonconforming Items*, and Contractor QC and Field Engineering personnel were knowledgeable of, and implemented, the NCR process. Two exceptions were identified. The first exception concerned an open Nonconformance Report (NCR) from August 2002 for a non-quality item, which implied a willful failure to follow procedures. This was identified as Assessment Follow-up Item A-03-OSR-RPPWTP-009-A02. The other exception, identified as a Non-cited Finding, involved failure to close an NCR in accordance with the procedure.

## 5.0 EXIT MEETING SUMMARY

The inspectors presented the inspection results to members of the Contractor management at an exit meeting on March 7, 2003. The contractor acknowledged the observations and conclusions presented. The inspectors asked the Contractor whether any material examined during the

inspection should be considered limited rights data. The Contractor identified no limited rights data. On March 21, 2003, the inspectors re-exited with the Contractor to communicate the change in the status of a Finding to a Non-cited Finding because of performance of Contractor corrective actions as identified in Section 3.2 of this report.

## **6.0 REPORT BACKGROUND INFORMATION**

### **6.1 Partial List of Persons Contacted**

D. Busch, Subcontracts Formation Manager  
 K. Chalmers, Acquisition Services Manager  
 H. Crotts, Supplier QA Manager  
 T. C. Doolittle, Procurement and Property Management  
 C. Edwards, Deputy Field Quality Control Manager  
 M. Ensminger, Field Quality Control Manager  
 J. Gorski, Warehouse Manager, Marshaling Facility  
 L. Haven, Deputy Field Engineering Manager  
 M. Hill, Project Field Procurement Manager  
 G. Hoffmann, Lead Receiving QC Engineer  
 T. Hurst, Construction Manager  
 R. Janysek, Welding Engineer  
 M. Jewell, Materials and Facilities Acquisition Team (MFAT) Manager  
 K. Jindal, Commercial Grade Dedication Coordinator, MFAT Project Engineer  
 D. Klein, Nuclear Safety Manager  
 B. Klinger, QA Assessments Manager  
 R. Mackey, Construction Superintendent  
 T. Minor, Project Field Engineering Manager  
 B. Niemi, Safety Engineer  
 W. Perry, Supplier Quality Manager  
 M. Peterson, GN Northern Project Manager  
 G. M. Pierce, Senior Contracts Supervisor  
 D. Smith, Warehouse Manager  
 D. Trybul, Shared Services Manager  
 J. Tuel, Warehouse Supervisor

### **6.2 List of Inspection Procedures Used**

Inspection Technical Procedure I-130, Revision 3, "Procurement Program Inspection"

Inspection Technical Procedure I-132, Revision 2, "Identification and Control of Items and Processes Program Inspection"

Inspection Technical Procedure I-133, Revision 2, "Quality Control Program Inspection".

### 6.3 List of Items Opened, Closed, and Discussed

#### Opened

A-03-OSR-RPPWTP-009-A01	Assessment Follow-up Item	Further ORP inspection of evaluation, critical characteristics, inspections and test of commercial grade pipe supports to be dedicated for important-to-safety applications. (Section 2.3.2.)
A-03-OSR-RPPWTP-009-A02	Assessment Follow-up Item	A subcontractor Discrepancy Notice implied a willful failure to follow procedures; the Contractor opened a RITS to investigate the issue. (Section 4.3.2)

#### Closed

None

#### Discussed

None

### 6.4 List of Acronyms

AFI	Assessment Follow-up Item
ANSI	American National Standards Institute
ASL	Approved Suppliers List
ASME	American Society of Mechanical Engineers
BNI	Bechtel National Inc.
BPO	Bulk Purchase Order
CAR	Corrective Action Report
CCN	Correspondence Control Number
CFR	Code of Federal Regulation
DEM	Design Engineering Manager
DOE	U.S. Department of Energy
FE	Field Engineer
FEM	Field Engineering Manager
FMR	Field Material Requisition
FQCM	Field Quality Control Manager
HLW	High Level Waste
IR	Inspection Report
ITP	Inspection Technical Procedure
ITS	important-to-safety

LAW	Low Activity Waste
MFAT	Materials and Facilities Acquisition Team
MR	Material Requisition
MRI	Material Receiving Instruction
NCR	Nonconformance Report
NDE	Nondestructive Examination
NIAC	Nuclear Industry Assessment Committee
NQA	Nuclear Quality Assurance
ORP	Office of River Protection
PO	Purchase Order
PTF	Pretreatment Facility
QA	quality assurance
QAM	Quality Assurance Manual
QARD	Quality Assurance Requirements and Description
QC	quality control
QL	Quality Level
RITS	Recommendations and Issues Tracking System
SDDR	Supplier Deviation Disposition Request
SIR	Surveillance Inspection Report
SRD	Safety Requirements Document
WTP	Waste Treatment and Immobilization Facility

U.S. DEPARTMENT OF ENERGY  
Office of River Protection

INSPECTION: Procurement Program, Identification and Control of Items and Processes  
Program, and Quality Control Program Inspection

REPORT NO: A-03-OSR-RPPWTP-009

FACILITY: Bechtel National, Inc.

LOCATION: 2435 Stevens Center  
Richland, Washington 99352

DATES: March 3 – 7, 2003

INSPECTORS: J. Polehn, Team Lead, Sr. Regulatory Technical Advisor  
P. Hernandez, Team Member  
W. Ang, Team Member  
R. DeFayette, Team Member

APPROVED BY: P. Carier, Verification and Confirmation Official  
WTP Safety Regulation Division

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## EXECUTIVE SUMMARY

### Procurement Program, Identification and Control of Items and Processes Program, and Quality Control Program Inspection

## INTRODUCTION

This inspection of the Bechtel National, Inc. (the Contractor) implementation of Quality Assurance Manual (QAM) activities covered the following areas:

- Procurement Program (Section 2.0)
- Identification and Control of Items and Processes Program (Section 3.0)
- Quality Control Program (Section 4.0)

## SIGNIFICANT OBSERVATIONS AND CONCLUSIONS:

- The Contractor purchased materials and services in accordance with engineering specifications, material and services requisitions, and requirements of QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*. Contractor purchasing activities for welding electrodes, concrete penetration liners, stainless steel sumps, carbon steel wall penetrations, and HVAC installation services included the necessary technical and quality requirements. Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents were performed in accordance with the QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*. (Section 2.1)
- The Contractor performed appropriate supplier performance evaluations, source verifications, and receiving inspections of welding electrodes, concrete penetration liners, stainless steel sumps, and carbon steel wall penetrations as required by QAM Policy Q-07.1, *Control of Items and Services*. The Contractor appropriately processed, evaluated and dispositioned supplier nonconformances as required by QAM Policy Q-07.1, *Control of Items and Services*. (Section 2.2)
- The Contractor was appropriately performing an evaluation for procurement of commercial grade pipe supports, and subsequent use in important-to-safety applications, in accordance with QAM Policy Q-07.1, *Control of Items and Services*. The Contractor's evaluation was not finalized during the inspection. The inspectors opened an Assessment Follow-up Item, A-03-OSR-RPPWTP-009-A01, to perform further ORP inspection of the completed evaluation package to ascertain if appropriate critical attributes were identified for all important-to-safety (ITS) applications of the pipe supports. The follow-up inspection will also ascertain if appropriate inspections and acceptance criteria were specified for the critical attributes of various types (i.e., deadweight, thermal, and seismic) of pipe supports. (Section 2.3)

- The Contractor's *Field Materials Management* procedure met the identification and control of items requirements of QAM Policy Q-07.1, *Control of Items and Services*. The Contractor identified and controlled its ITS reinforcing steel bars, embeds, and hermetically sealed cans of welding electrodes, in accordance with the requirements of QAM Policy Q-07.1, *Control of Items and Services*. (Section 3.1)
- The Contractor incorporated the requirements of QAM Policy-13.1, *Handling, Storage, and Shipping* in its *Field Materials Management, Storage and Issue, and Welding Filler Metal Control* procedures and specifications. The Contractor implemented the requirements of the procedures and specification and received, identified, handled, and stored important-to-safety items in accordance with QAM Policy Q-13.1, *Handling, Storage, and Shipping*, with one exception. Contractor personnel color coded welding electrodes with paint that did not meet the *Welding Filler Metal Control* requirements. The inspectors concluded the failure was of minor safety significance and identified the failure as a Non-cited Finding. (Section 3.2)
- The Contractor qualified and certified QC inspectors in accordance with QAM Policy Q-10.1, *Inspection*. The Contractor documented QC inspector qualifications and certifications in accordance with QAM Policy Q-10.1, *Inspection*. (Section 4.1)
- The Contractor's program for developing and documenting inspection requirements, and implementation of the program, continued to meet the requirements of the QAM Policy Q-10.1, *Inspection*. (Section 4.2)
- The Contractor identified, controlled, documented, evaluated and dispositioned nonconforming items in accordance with QAM Policy Q-15.1, *Control of Nonconforming Items*, and Contractor QC and Field Engineering personnel were knowledgeable of, and implemented, the NCR process. Two exceptions were identified. The first exception concerned an open Nonconformance Report (NCR) from August 2002 for a non-quality item, which implied a willful failure to follow procedures. This was identified as an Assessment Follow-up Item, A-03-OSR-RPPWTP-009-02. The other exception identified, as a Non-cited Finding, involved failure to close an NCR in accordance with the procedure. (Section 4.3)

## Table of Contents

1.0	REPORT DETAILS.....	1
1.1	Introduction.....	1
2.0	PROCUREMENT PROGRAM INSPECTION (INSPECTION TECHNICAL PROCEDURE [ITP] I-130).....	1
2.1	Implementation of the Procurement Processes (ITP-I-130) .....	2
2.1.1	Inspection Scope .....	2
2.1.2	Observations and Assessments .....	2
2.1.3	Conclusions.....	5
2.2	Supplier Performance Evaluation, Source Verification, and Receiving Inspection (ITP-I-130) .....	6
2.2.1	Inspection Scope .....	6
2.2.2	Observations and Assessments .....	6
2.2.3	Conclusions.....	9
2.3	Commercial Grade Items (ITP-I-130) .....	9
2.3.1	Inspection Scope .....	9
2.3.2	Observations and Assessments .....	9
2.3.3	Conclusions.....	10
3.0	IDENTIFICATION AND CONTROL OF ITEMS AND PROCESSES INSPECTION (ITP-I-132).....	10
3.1	Identification and Control of Items (ITP-I-132) .....	11
3.1.1	Inspection Scope .....	11
3.1.2	Observations and Assessments .....	11
3.1.3	Conclusions.....	12
3.2	Handling, Storing, and Shipping Important-to-Safety Items (ITP-I-132) .....	12
3.2.1	Inspection Scope .....	12
3.2.2	Observations and Assessments .....	13
3.2.3	Conclusions.....	14
4.0	QUALITY CONTROL PROGRAM INSPECTION (ITP-I-133) .....	15
4.1	Maintaining Qualification Documentation for Inspection and Test Personnel (ITP-I-133) .....	15
4.1.1	Inspection Scope .....	15
4.1.2	Observations and Assessments .....	15
4.1.3	Conclusions.....	16
4.2	Inspection Requirements (ITP-I-133) .....	17
4.2.1	Inspection Scope .....	17
4.2.2	Observations and Assessments .....	17
4.2.3	Conclusions.....	18
4.3	Control of Nonconforming Items, Materials, and Services (ITP-I-133) .....	18
4.3.1	Inspection Scope .....	18
4.3.2	Observations and Assessments .....	19

4.3.3	Conclusions.....	21
5.0	EXIT MEETING SUMMARY.....	21
6.0	REPORT BACKGROUND INFORMATION.....	22
6.1	Partial List of Persons Contacted.....	22
6.2	List of Inspection Procedures Used .....	22
6.3	List of Items Opened, Closed, and Discussed.....	23
6.4	List of Acronyms .....	23

## **PROCUREMENT PROGRAM, IDENTIFICATION AND CONTROL OF ITEMS AND PROCESSES PROGRAM, AND QUALITY CONTROL PROGRAM INSPECTION INSPECTION REPORT A-03-OSR-RPPWTP-009**

### **1.0 REPORT DETAILS**

#### **1.1 Introduction**

In accordance with the River Protection Project Waste Treatment and Immobilization Plant (WTP) Contract<sup>1</sup> and specifically 10 CFR 830, Subpart A, “*Quality Assurance Requirements*,” the Contractor was required to have a Quality Assurance Manual (QAM) that assigned responsibilities and authorities, defined policies and requirements, and provided for the performance and assessment of work. In addition, the Safety Requirements Document (SRD), Safety Criterion 7.3 –11, required “Procured items and services shall meet established requirements and perform as specified. Prospective suppliers shall be evaluated and selected on the basis of specified criteria. Processes to ensure that approved suppliers continue to provide acceptable items and services shall be established and implemented.” The SRD, Safety Criterion 7.3 –7, required “Inspection and testing of specified items, services, and processes shall be conducted using established acceptance and performance criteria.” The document, 24590-WTP-QAM-QA-01-001, *Quality Assurance Manual*, Revision 3, January 6, 2003, was used as the basis for this inspection.

The inspectors reviewed Bechtel National, Inc.’s (the Contractor) procurement program, identification and control of items and processes program, and quality control program implementing procedures to confirm implementation of QAM Policy Q-04.1, *Procurement Document Control*, Policy Q-07.1, *Control of Items and Services*, Policy Q-08.1, *Identification and Control of Items*, Policy Q-10.1, *Inspection*, Policy Q-13.1, *Handling, Storage, and Shipping*, and Policy Q-15.1 *Control of Nonconforming Items*.

### **2.0 PROCUREMENT PROGRAM INSPECTION (INSPECTION TECHNICAL PROCEDURE [ITP] I-130)**

The U.S. Department of Energy, Office of River Protection (ORP) previously assessed the Contractor’s procurement program and implementation of its program on June 10 – 14, 2002 and the results of the inspection were documented in inspection report IR-02-009. The inspectors found the Contractor’s procurement program complied with the requirements of the Contractor’s QAM at that time. The inspectors also found initial implementation of the program was in accordance with approved procedures and was effective in procuring important-to-safety (ITS) equipment and services. A follow-on inspection was performed on March 3 – 7, 2003 to confirm continued implementation of the Contractor’s QAM as Contractor activities for procurement of materials and services increased. The inspection and results of the inspection are documented in the following sections of this inspection report.

<sup>1</sup> Contract DE-AC27-01RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

## 2.1 Implementation of the Procurement Processes (ITP-I-130)

### 2.1.1 Inspection Scope

The inspectors examined Contractor procurement procedures, purchase orders, services contract, and associated records for procurement of materials and services. The inspectors examined the procedures and records, and interviewed responsible Contractor personnel to confirm implementation of the Contractor's QAM Policy Q-04.1, *Procurement Document Control*, and Policy Q-07.1, *Control of Items and Services*.

### 2.1.2 Observations and Assessments

The inspectors examined the following Contractor procedures and assessed continued compliance with the Contractor's QAM Policy Q-04.1 and Q-07.1 requirements for procurement of material and services. The inspectors assessed compliance with the requirements for Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents.

- 24590-WTP-3DP-G06B-00001, *Material Requisitions*, Revision 4, February 7, 2003
- 24590-WTP-GPP-GCB-00100, *Field Materials Management*, Revision 3, November 18, 2002
- 24590-WTP-3DP-G06B-00002B, *Subcontracts*, Revision 1, November 4, 2002
- 24590-WTP-G06B-00010, *Specifying Supplier Quality Assurance Program Requirements*, Revision 0, October 8, 2001
- 24590-WTP-GPP-GPX-213, *Evaluation and Selection of Potential Suppliers/Subcontractors*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPX-00301, *Solicitations*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPX-00402, *Evaluation of Proposal/Source Selection*, Revision 1, November 4, 2002
- 24590-WTP-3DP-G06B-00005, *Bid Evaluations*, Revision 1, November 4, 2002
- 24590-WTP-3DP-G06B-00011, *Evaluation of Supplier Quality Assurance Program*, Revision 0, October 15, 2001
- 24590-WTP-GPP-QA-401, *Supplier Quality Evaluation and Selection*, Revision 1, January 10, 2003

- 24590-WTP-GPP-PADC-002, *Project Records Management*, Revision 3, November 8, 2002
- 24590-WTP-GPP-GPX-00206, *Subcontractor/Purchase Order Files*, Revision 1, November 4, 2002.

The inspectors determined the above procedures continued to implement the Contractor's QAM Policy Q-04.1 and Q-07.1 requirements for Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents. The inspectors examined the following Contractor procurement records and interviewed responsible Contractor personnel to confirm implementation of the Contractor's QAM Policy Q-04.1 and Policy Q-07.1 requirements and the above implementing procedures.

E-7018 and E-8018 Welding Electrode

Field Material Requisition (FMR) 24590-QL-FMR-NWCO-00006, E-7018 and E-8018 Welding Electrode, Revision 0, February 6, 2003

Field Material Requisition (FMR) 24590-QL-FMR-NWCO-00009, E-8018 Welding Electrode, Revision 0, February 19, 2003

FMR 24590-QL-FMR-NWCO-00010, E-8018 Welding Electrode, Revision 0, February 24, 2003

American Society of Mechanical Engineers (ASME) Specification SFS-5.5, Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding, 2001 edition

Nuclear Industry Assessment Committee (NIAC) Audit Report 2001-E01, Weldstar QA Program Audit, performed by Holtec International, February 13, 2001

RPP-WTP Memorandum, CCN 024666, Supplier Quality Assurance Program Review and NIAC Audit Review Request – MR 24590-QA-FMR-NWCO-00001, Weldstar Company, Aurora, Illinois, November 21, 2001

24590-WTP-ASP-QA-02-003, Annual Supplier Performance Evaluation of Weldstar Company, February 12, 2002

Purchase Order (PO) 24590-QL-FPA-NWCO-00006, Welding Consumables, Weld Rod, Revision 0, February 21, 2003

Purchase Order (PO) 24590-QL-FPA-NWCO-00006, Welding Consumables, Weld Rod, Revision 1, February 27, 2003

Purchase Order (PO) 24590-QL-FPA-NWCO-00006, Welding Consumables, Weld Rod, Revision 2, February 27, 2003.

Concrete Penetration Encast Liners

Material Requisition (MR) 24590-QL- MRA-DD00-00002, Encast Liners L/S, Revision 1, February 6, 2002

Specification 24590-WTP-3PS-NLLR-T0001, Encast Through-Wall Liners, Revision 0, October 5, 2001

Specification 24590-WTP-3PS-SS00-T0001, Welding of Carbon Structural Steel, Revision 1, December 20, 2001

RPP-WTP Memorandum, CCN 046233, NIAC Assessment Review of Colonial Machine Company, December 23, 2002

PO 24590-QL-POA-DD00-00002, Encast Liners L/S, Revision 0, September 10, 2001.

Stainless Steel Sumps

MR 24590-QL-MRA-DD00-00001, Embed Plates, Standard, Revision 6, August 3, 2002

Engineering Specification 24590-WTP-3PS-DD00-T0001, Purchase of Standard and Non-Standard Embedded Steel Items, Revision 2, January 15, 2003

Drawing 24590-PTF-DD-S13T-00017, Pretreatment Facility Structural Concrete Embedments, Pit Details Sh 2, Revision 8, February 24, 2003

RPP-WTP Memorandum, CCN 024115, Results of Supplier Quality Assurance Manual Review – American Boiler Works Inc. Everett, Washington, October 25, 2001

Bechtel National, Inc., Supplier Survey Report 24590-WTP-SSV-QA-01-004, Revision 0, December 11, 2001

Blanket PO 24590-QL-BPO-DD00-00001, Release 22, Embed Plates, Standard, Revision 5, March 2, 2003.

Carbon Steel Wall Penetrations

MR 24590-QL-MRA-DD00-00001, Embed Plates, Standard, Revision 6, August 3, 2002

Engineering Specification 24590-WTP-3PS-DD00-T0001, Purchase of Standard and Non-Standard Embedded Steel Items, Revision 2, January 15, 2003

Drawing 24590-WTP-DD-S13T-00019, Civil/Structural Standards, Wall Penetration Details, Revision 4, February 27, 2003

RPP-WTP Memorandum, CCN 024115, Results of Supplier Quality Assurance Manual Review – American Boiler Works Inc. Everett, Washington, October 25, 2001

Bechtel National, Inc., Supplier Survey Report 24590-WTP-SSV-QA-01-004, Revision 0, December 11, 2001

Blanket PO 24590-QL-BPO-DD00-00001 Release 25, Embed Plates, Standard, Revision 8, February 21, 2003.

### Main Plant HVAC Installation

Subcontract 24590-QL-SRA-MDHM-00001 – HVAC Installation Subcontract, October 15, 2002

RPP-WTP Memorandum, CCN 035553, Quality Assurance Review for Luwa Bahnson Intermech, August 5, 2002

Bechtel National, Inc., Supplier Survey Report 24590-WTP-SSV-QA-02-226, Revision 0, September 25, 2002.

The inspectors determined the POs and subcontract listed above were prepared, reviewed and issued in accordance with Contractor procurement procedures. The Contractor specified appropriate technical and quality requirements for the material and services in the MRs, the POs, and subcontract. The inspectors noted PO 24590-QL-FPA-NWCO-00006, Revision 2, listed FMR 24590-QL-FMR-NWCO-00009 as the basis for Revision 2 of the PO. The inspectors determined FMR 24590-QL-FMR-NWCO-00009 was the basis for Revision 1 of the PO and was erroneously replicated for Revision 2 of the PO. The correct basis for Revision 2 of PO 24590-QL-FPA-NWCO-00006 was FMR 24590-QL-FMR-NWCO-00010. PO 24590-QL-FPA-NWCO-00006, Revision 2, correctly included all the requirements of FMR 24590-QL-FMR-NWCO-00010. The Contractor initiated CAR 24590-CAR-QA-03-065 and PO 24590-QL-FPA-NWCO-00006, Revision 3, to identify and correct the condition. The inspectors determined the error was minor in nature and had no effect on the technical and quality requirements of the PO.

The inspectors determined the Contractor procured material and services for the above listed purchase orders and subcontract from suppliers that had been evaluated and selected in accordance with the procurement procedures. The Contractor's QA Department Audits group audited suppliers and reviewed suppliers' QA programs in accordance with procurement and QA procedures. The Contractor selected suppliers who were included in the QA Approved Suppliers List of February 26, 2003.

### **2.1.3 Conclusions**

The Contractor purchased materials and services in accordance with engineering specifications, material and services requisitions, and requirements of QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*. Contractor purchasing activities for welding electrodes, concrete penetration liners, stainless steel sumps, carbon steel wall penetrations, and HVAC installation services included the necessary technical and quality requirements. Contractor procurement document content, review and approval, changes, procurement planning, supplier evaluation and selection, proposal bid evaluation, and control of supplier generated documents were performed in accordance with the QAM Policy Q-04.1, *Procurement Document Control* and Policy Q-07.1, *Control of Items and Services*.

## **2.2 Supplier Performance Evaluation, Source Verification, and Receiving Inspection (ITP-I-130)**

### **2.2.1 Inspection Scope**

The inspectors examined Contractor procedures and records for the material and services listed in 2.1, above, and interviewed cognizant Contractor personnel. The inspectors observed material receiving and receiving inspection at the Contractor's Marshaling Yard facility. The inspectors assessed implementation of the supplier performance evaluation, source verification, and receiving inspection requirements of QAM Policy Q-07.1, *Control of Items and Services*.

### **2.2.2 Observations and Assessments**

The inspectors examined the following Contractor procedures and assessed continued compliance with QAM Policy Q-07.1 requirements for procurement of material and services. The inspectors assessed compliance with the requirements for Contractor supplier performance evaluations, source verifications, acceptance of items and services, acceptance of supplier's Certificate of Conformances, receiving inspections, and Contractor control of supplier nonconformances.

- 24590-WTP-3DP-G04B-00058, *Supplier Engineering and Quality Verification Documents*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GCB-00100, *Field Materials Management*, Revision 3, November 18, 2002
- 24590-WTP-3DP-G04B-00061, *Disposition of Nonconformance Reports*, Revision 3, February 7, 2003
- 24590-WTP-3DP-G04B-00063A, *Supplier Deviation Disposition Request*, Revision 3, February 7, 2003
- 24590-WTP-GPP-CON-7101, *Construction Quality Control Program*, Revision 1, June 3, 2002
- 24590-WTP-GPP-CON-7104, *Nonconformance Reporting and Control*, Revision 2, January 2, 2003
- 24590-WTP-GPP-GPA-00300, *Property Records*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPA-00400, *Receipt of Property*, Revision 1, November 4, 2002
- 24590-WTP-GPP-GPA-00500, *Storage and Issue*, Revision 1, November 4, 2002

- 24590-WTP-GPP-PADC-002, *Project Record Management*, Revision 3, November 8, 2002
- 24590-WTP-GPP-GPQ-00100, *Supplier Quality*, Revision 2, November 4, 2002
- 24590-WTP-GPP-CON-4101, *Construction Subcontract Management*, Revision 1, November 4, 2002.

The inspectors determined the above procedures continued to implement the QAM Policy Q-07.1 requirements for Contractor supplier performance evaluation, source verification, acceptance of items and services, acceptance of supplier's Certificate of Conformances, receiving inspection, and Contractor control of supplier nonconformances. The inspectors examined the following Contractor procurement records and interviewed responsible Contractor personnel to confirm implementation of the requirements of QAM Policy Q-07.1, and the above implementing procedures.

#### E-7018 and E-8018 Welding Electrode

Material Receiving Report (MRR) 07499, March 4, 2003

Material Receiving Instruction (MRI) 25490-WTP-MRI-W-03-0002, Weld Electrode, Revision 0, February 5, 2003

Weldstar Company Certificate of Compliance, with Certified Material Test Reports and Material Safety Data Sheets, February 19, 2003.

Nuclear Industry Assessment Committee (NIAC) Audit Report 2001-E01, Weldstar QA Program November 21, 2001.

#### Concrete Penetration Encast Liners

MRR 06220, December 19, 2002

MRI 25490-WTP-MRI-M-02-0010, Encast Liners, Revision 1, December 4, 2002 (Not yet completed as of March 7, 2003)

Form G-321-V, Supplier Document Submittal Requirements, Encast Liners L/S QL-2 MH011 (VFL1), including Certified Material Test Reports, December 6, 2002

Surveillance Inspection Report (SIR) 24590-QI-YQA-DD00-20010, Encast Liners, released five 10.5 X 48" SS Encast Liners for shipment, December 6, 2002

Nonconformance Report 24590-WTP-NCR-CON-02-254, 10 1/2" Bore 48" Stainless Steel Encast Liner, December 31, 2002.

Stainless Steel Sumps

MRR 07291, February 18, 2003

MRI 25490-WTP-MRI-C-02-0007, Standard Embedded Steel, Revision 3, February 18, 2003

Form G-321-V, Supplier Document Submittal Requirements, Embed Plates, Standard, including Certified Material Test Reports, February 13, 2003

SIR 24590-QI-YQA-DD00-10044, Embed Plates, Standard, released seven 30" Sumps for shipment, February 22, 2003.

Carbon Steel Wall Penetrations

MRR 07215, February 17, 2003

MRI 25490-WTP-MRI-C-02-0007, Standard Embedded Steel, Revision 3, February 17, 2003

Form G-321-V, Supplier Document Submittal Requirements, Embed Plates, Standard, including Certified Material Test Reports, February 6, 2003

SIR 24590-QI-YQA-DD00-10043, Embed Plates, Standard, released four PSH4X48 Wall Sleeves for shipment, February 10, 2003.

The inspectors determined the Contractor performed appropriate source evaluations, source inspections, and receiving inspections in accordance with the listed procedures for the received material. The inspectors determined the Contractor received certificates of conformance from suppliers of the material and reviewed the certificates in accordance with the material receiving inspection instructions. The inspectors noted the Contractor initiated Nonconformance Report (NCR) 24590-WTP-NCR-CON-02-254 and had not accepted the concrete encast liners listed above because of material discrepancies noted during receiving inspection.

The *Field Materials Management* procedure provided requirements for the performance of commercial receipt and quality inspection at the Marshaling Yard and storing and maintaining items until issued for use. The inspectors discussed with Contractor Marshaling Yard personnel the receiving, identification, handling, and storage of materials. The inspectors observed receiving inspection performed by a Contractor QC inspector on a delivery of 1500 pounds of weld rod electrodes. The inspectors observed the receiving inspection was performed in accordance with the *Field Materials Management* procedure.

The inspectors examined the following Supplier Deviation Disposition Requests (SDDR) to assess compliance with the Contractors *Supplier Deviation Disposition Request* procedure. The inspectors determined the SDDRs were submitted by suppliers, and evaluated and dispositioned by the Contractor in accordance with the procedure.

- 24590-WTP-SDDR-PROC-02-0078, Embed Plates, Revision 0, August 28, 2002
- 24590-WTP-SDDR-PROC-02-0077, Embeds, Revision 0, August 21, 2002

- 24590-WTP-SDDR-PROC-02-0076, Reinforcing Steel, Revision 0, August 7, 2002
- 24590-WTP-SDDR-PROC-02-0075, Reinforcing Steel, Revision 0, August 7, 2002
- 24590-WTP-SDDR-PROC-02-0074, Sump, Revision 0, August 1, 2002.

### 2.2.3 Conclusions

The Contractor performed appropriate supplier performance evaluations, source verifications, and receiving inspections of welding electrodes, concrete penetration liners, stainless steel sumps, and carbon steel wall penetrations as required by QAM Policy Q-07.1, *Control of Items and Services*. The Contractor appropriately processed, evaluated and dispositioned supplier nonconformances as required by QAM Policy Q-07.1, *Control of Items and Services*.

## 2.3 Commercial Grade Items (ITP-I-130)

### 2.3.1 Inspection Scope

The Contractor's commercial grade dedication process and procedure were previously reviewed and determined to meet the requirements of the Contractor's QAM Policy Q-07.1, *Control of Items and Services* (ORP Inspection Report IR-02-009). The inspectors examined a commercial grade dedication procurement package and interviewed cognizant Contractor personnel to assess implementation of the procedure and the Contractor's QAM Policy Q-07.1 requirements.

### 2.3.2 Observations and Assessments

The inspectors examined Contractor procedure 24590-WTP-3DP-G04T-00909, *Commercial Grade Dedication*, Revision 0, June 11, 2002. The inspectors determined the Contractor had made no changes to the procedure and continued to meet *Quality Assurance Manual* Policy Q-07.1 requirements as documented in ORP Inspection Report IR-02-009. The *Commercial Grade Dedication* procedure required the Contractor's engineers to establish critical attributes of material necessary to perform its intended function and meet design requirements. The procedure also required engineering to establish inspections and tests necessary to confirm critical attributes of the material. The inspectors determined the *Commercial Grade Dedication* procedure met *Quality Assurance Manual* Policy Q-07.1 requirements.

The inspectors examined MR 24590-CD-MRA-PH01-00001, *Pipe Supports - Standard/Engineered, Material and Fabrication (CD)*, (not yet issued). The inspectors interviewed cognizant Contractor personnel to assess implementation of the *Commercial Grade Dedication* procedure. The MR included provisions for purchase of commercial grade pipe supports, evaluation, and acceptance criteria, for use of the commercial grade pipe supports in Quality Level 1, 2, and 3 applications. Contractor engineers established critical attributes for the pipe support and the necessary inspections and tests to verify the critical attributes had been obtained. The Contractor informed the inspectors the MR and commercial grade evaluation document were still in the review and comment stage and were not yet approved documents. The Contractor also informed the inspectors commercial grade dedication of pipe support

materials was being evaluated to preclude the inter-mixing of commercial and quality grade pipe supports. All pipe support material would be procured as commercial grade and the dedication process applied by the Contractor on material for use in quality applications.

Though the inspectors determined the Contractor evaluation was being performed in accordance with the *Commercial Grade Dedication* procedure for the procurement of commercial grade pipe supports, the evaluation was still in the review process during the ORP inspection. The Contractor had not yet established the critical attributes of the pipe supports needed to if ascertain design functions would be met. The inspections and tests needed to verify those critical attributes had also not yet been established in an approved document. The inspectors opened an Assessment Follow-up Item to perform further ORP inspection of the completed evaluation package and to ascertain if appropriate critical attributes were identified for all important-to-safety (ITS) applications of the pipe supports. The follow-up inspection will also ascertain if appropriate inspections and acceptance criteria were specified for the critical attributes of various types of pipe supports (i.e., deadweight, thermal, and seismic). Follow-up to verify this will be tracked as Assessment Follow-up Item (AFI) A-03-OSR-RPPWTP-009-A01.

### **2.3.3 Conclusions**

The Contractor was appropriately performing an evaluation for procurement of commercial grade pipe supports, and subsequent use in important-to-safety applications, in accordance with QAM Policy Q-07.1, *Control of Items and Services*. The Contractor's evaluation was not finalized during the inspection. The inspectors opened an Assessment Follow-up Item, A-03-OSR-RPPWTP-009-A01, to perform further ORP inspection of the completed evaluation package to ascertain if appropriate critical attributes were identified for all important-to-safety (ITS) applications of the pipe supports. The follow-up inspection will also ascertain if appropriate inspections and acceptance criteria were specified for the critical attributes of various types (i.e., deadweight, thermal, and seismic) of pipe supports.

## **3.0 IDENTIFICATION AND CONTROL OF ITEMS AND PROCESSES INSPECTION (ITP-I-132)**

The ORP performed a programmatic review of the Contractor's Identification and Control of Items and Processes program from June 10 - 14, 2002. The results of the inspection were documented in inspection report IR-02-009. The results were limited because the construction authorization at the time of the inspection allowed very few ITS activities. However, based on the program and activities reviewed, the inspection concluded the Contractor's Identification and Control of Items and Processes program was in compliance with applicable requirements. This current inspection was a follow-on inspection to confirm continued implementation of the Identification and Control of Items and Processes program. The inspection focused on reviewing identification and control of items during receiving and issue at the site.

### 3.1 Identification and Control of Items (ITP-I-132)

#### 3.1.1 Inspection Scope

The inspectors examined Contractor procedures to confirm implementation of the QAM Policy Q-08.1, *Identification and Control of Items* requirements. The inspectors interviewed Contractor warehouse and QC personnel, and toured material receiving, holding, and storage areas to verify implementation of the Contractor procedures and QAM Policy Q-08.1 requirements for identification and control of items.

#### 3.1.2 Observations and Assessments

The Contractor's QAM Policy Q-08.1, Section 3, specified the Contractor's requirements for identification and control of items. The inspectors reviewed the Contractor's *Field Materials Management* procedure to determine if the Contractor's QAM, Policy Q-08.1, Section 3, identification requirements were appropriately prescribed in the procedure. The inspectors determined the *Field Materials Management* procedure provided requirements for identifying items upon initial receipt at the Marshaling Yard and maintaining identification and control of items up to and including the installation and use of the items. The inspectors determined the *Field Materials Management* procedure implemented the Contractor's QAM Policy Q-08.1, Section 3, requirements for identification and control of items.

The inspectors discussed with Contractor Marshaling Yard QC and purchasing personnel the receiving, identification, handling, and storage of materials. Contractor personnel informed the inspectors the materials for the Waste Treatment Plant were processed through the Contractor's materials Marshaling Yard. The inspectors performed a walk through inspection of the Marshaling Yard to assess compliance with the *Field Materials Management* procedure. The inspectors observed reinforcing steel bars, embeds, and hermetically sealed cans of welding electrodes, as well as other ITS items, at the Marshaling Yard. The inspectors observed the following:

- The reinforcing steel bars were appropriately identified, tagged and stored in a fenced area in the yard, and at a secured fenced-in area adjacent to the railroad tracks, as required by the *Field Materials Management* procedure. The reinforcing steel bars were identified with the manufacturers identification tag and one green QC acceptance tag per bundle in accordance with the procedure.
- The embeds were appropriately identified, tagged and stored on pallets in a fenced area in the Marshaling Yard in accordance with the *Field Materials Management* procedure. Embeds were identified by one manufacturer's identification tag and one green QC acceptance tag per pallet. Each piece was identified by means of stamped manufacturer's identification and field-applied markings made with metal markers as required by the *Field Materials Management* procedure.
- The cans of welding electrodes were in an indoor receiving area and were identified with a purchase order and corresponding MRR number as required by the *Field Materials*

*Management* procedure. QC had not yet performed receiving inspection for the cans of welding electrodes. The cans of welding electrodes were identified and controlled in accordance with the *Field Materials Management* procedure.

The inspectors observed segregated areas had been established within the Marshaling Yard and in the warehouse for receiving and inspecting material. The Contractor designated two segregated areas for non-conforming material. The Contractor used yellow “Hold” tape to identify large items offloaded within the Marshaling Yard fenced area, such as sections of C-5 ductwork, that had not yet been QC accepted. Contractor personnel informed the inspectors the items could not be transported from the Marshaling Yard for use at the WTP until QC receipt inspected the items and tagged the items with acceptance tags.

At the time of the inspection the Contractor had received no Quality Assurance Requirements and Description (QARD)-related items. As a result, the inspectors were not able to verify the identification and control of QARD-related items. In addition to the normal QAM requirements, the specific QA requirements for the items and activities critical to waste acceptance specification compliance were applicable. As the project proceeds QARD-related items described in 24590-HLW-RPT-PR-01-001, *Waste Acceptance Impacting Items and Activities*, Revision 1, are required to be procured, received, identified, and controlled.

The inspectors verified items with limited calendar or operating life (e.g., adhesives, Amercoat, joining compound, Hydrocide 700B) were identified and controlled. The inspectors reviewed a spreadsheet titled, “Shelf Life” containing nine entries for items with lifetimes of limited duration. The Contractor tracked the items by description, part numbers, quantity, and expiration date.

### **3.1.3 Conclusions**

The Contractor's *Field Materials Management* procedure met the identification and control of items requirements of QAM Policy Q-07.1, *Control of Items and Services*. The Contractor identified and controlled its ITS reinforcing steel bars, embeds, and hermetically sealed cans of welding electrodes, in accordance with the requirements of QAM Policy Q-07.1, *Control of Items and Services*.

## **3.2 Handling, Storing, and Shipping Important-to-Safety Items (ITP-I-132)**

### **3.2.1 Inspection Scope**

The inspectors assessed the adequacy and effectiveness of the Contractor’s procedures to verify compliance with the Contractor’s QAM Policy Q-13.1, *Handling, Storage, and Shipping* requirements. The inspectors interviewed Contractor warehouse, QC, and Field Engineering personnel, toured material receiving, holding, storage, disbursement, and lay down areas, and reviewed applicable procedures, to verify the Contractor handled, stored, and shipped ITS items in accordance with the requirements of the implementing procedures and the Contractor’s QAM Policy Q-13.1, *Handling, Storage, and Shipping*.

### 3.2.2 Observations and Assessments

The Contractor's QAM Policy Q-13.1, *Handling, Storage, and Shipping*, Section 3, specified the requirements for handling, storing, and shipping of items. The inspectors reviewed the Contractor's *Field Materials Management* procedures and procedure 24590-WTP-GPP-GPA-00500, *Storage and Issue*, Revision 1, to determine if the Contractor's QAM Policy Q-13.1, Section 3, Revision 3, handling, storage, and issue requirements were appropriately prescribed in the procedures.

The inspectors determined the *Field Materials Management* procedure provided requirements for identifying items upon initial receipt at the Marshaling Yard, and maintaining identification and traceability of items up to and including the installation and use of the items. The inspectors determined the *Storage and Issue* procedure provided requirements for the protection of items in storage facilities, segregation of government property, and the records requirements for property sent out for maintenance and/or calibration.

The inspectors selected three items (rebar, embeds, and welding rod electrodes) and these were evaluated for control and identification to verify handling, storage, and shipping processes were effective and QAM requirements were met.

The inspectors interviewed the QC receiving inspectors and engineer responsible for site rebar, toured the rebar storage and bending area, and observed rebar installation. The inspectors were told the rebar was QC accepted at the Marshaling Yard, green tagged, and later moved to the WTP site, as it is needed. The inspectors observed the bundles of rebar had the manufacturer's identification tags and QC green tags still intact within the rebar bending area. Each individual rebar was stamped with the manufacturer's identifying information.

The inspectors interviewed the QC receiving inspectors and engineer responsible for the site embeds, toured embed storage/lay down areas, and observed embeds in place and being installed by craft. Each embed pallet observed had a manufacturer's identification tag and a QC acceptance tag. Furthermore, each embed was etched with a stock code identifier from the manufacturer.

The inspectors interviewed QC receiving inspectors and two engineers responsible for site welding and distribution of welding electrodes. The inspectors reviewed the Contractor's Welding Specification 24590-WTP-MN-CON-01-001-05-01, *Welding Filler Metal Control*. The inspectors toured the welding rod issue room, observed the distribution of welding electrodes, and inspected the flammable item storage cabinet in the rod issue room. The inspectors observed the Contractor employees verifying the identification of welding electrodes from the manufacturers unopened container, opening a container and colorcoding the electrodes prior to placement in the electrode storage ovens.

The inspectors selected a spray can of yellow paint from the flammable item storage cabinet to verify welding electrode color coding was performed in accordance with the requirements of the Contractor's *Welding Filler Metal Control* specification. The selected paint used by the Contractor to identify welding electrodes was a Krylon's Industrial Paints/Farm and Implement Paints. Section 5.2 of the Contractor's *Welding Filler Metal Control* specification required

“Paint used for color coding coated electrodes shall be capable of withstanding temperatures of 300 °F for prolonged periods of time.” The Contractor had no documentation of the temperature capability for the paint selected by the inspectors. The inspectors contacted the paint manufacturer on Friday, March 7, 2003, and were informed the paint had a dry heat resistance of 120 degrees Fahrenheit. The inspectors determined the Contractor was not using paint capable of withstanding temperatures of 300 degrees F as required by the Contractor’s *Welding Filler Metal Control* specification.

The inspectors reviewed the significance of the procedural violation associated with the use of incorrect paint to mark weld electrodes. The inspectors determined the use of yellow paint to identify E316L16 welding electrodes was an aid for rod room attendants to prevent accidental co-mingling, issue, and use of incorrect electrodes. The type of electrode was marked by the manufacturer on each electrode. In the event the yellow paint was not discernible the type of electrode could still be determined by reading the print on the electrode. If the paint faded the rod room attendant could verify the identification of the electrode type, and repaint the end of the electrode. Since the yellow paint was added as an aid, the procedural violation associated with the use of incorrect paint to mark weld electrodes was of minor safety significance. The Contractor issued a Corrective Action Report (CAR), 24590-WTP-CAR-QA-03-078, to correct the condition. The CAR stated the paint had been removed from service and the Contractor has been monitoring electrode color coding daily for deterioration. The inspectors identified the failure to follow the Contractor’s *Welding Filler Metal Control* specification as a Non-cited Finding.

The Contractor had an area in the Marshaling Yard warehouse for Level B storage of material requiring environmental protection in accordance with American National Standard Institute/American Society of Mechanical Engineers (ANSI/ASME) NQA-2, *Quality Assurance Requirements for Nuclear Power Plants*. The inspectors observed the storage area was established indoors and was equipped for uniform heating and temperature controls to prevent condensation and corrosion. The Contractor monitored ambient temperatures in the Level B storage area by means of a calibrated Supco Model CR87B temperature recorder. The inspectors observed temperature readings on the recorder were within the 40 °F minimum and 140 °F maximum temperature required by ANSI/ASME NQA-2 for Level B storage. The Level B storage area contained a special cabinet housing NDE Welded Flaw calibration test blocks. The inspectors randomly selected two of six cabinet drawers to verify the calibration test blocks matched the description and number provided on the kick and count inventory sheets located in the drawers. The inspectors confirmed that the drawer contents were segregated by size and type as described in the shipping documents and were as described on the kick and count sheets.

### 3.2.3 Conclusions

The Contractor incorporated the requirements of QAM Policy-13.1, *Handling, Storage, and Shipping* in its *Field Materials Management, Storage and Issue*, and *Welding Filler Metal Control* procedures and specifications. The Contractor implemented the requirements of the procedures and specification and received, identified, handled, and stored important-to-safety items in accordance with QAM Policy Q-13.1, *Handling, Storage, and Shipping*, with one exception. Contractor personnel color coded welding electrodes with paint that did not meet the

*Welding Filler Metal Control* requirements. The inspectors concluded the failure was of minor safety significance and identified the failure as a Non-cited Finding.

#### **4.0 QUALITY CONTROL PROGRAM INSPECTION (ITP-I-133)**

The ORP performed a programmatic review of the Contractor's QC program from June 10 - 14, 2002. The results of the inspection were documented in inspection report IR-02-009. The results were limited because the construction authorization at the time of the inspection allowed very few ITS activities. However, based on the program and activities reviewed, the inspection concluded the Contractor's QC program was in compliance with applicable requirements, staff were adequately qualified and trained, and QC work performed to that date was in accordance with the QC program. The current inspection was a follow-on inspection to confirm continued implementation of the QC program. The inspection focused on reviewing completed QC inspection reports, nonconformance reports (NCRs), and interviews with QC personnel.

#### **4.1 Maintaining Qualification Documentation for Inspection and Test Personnel (ITP-I-133)**

##### **4.1.1 Inspection Scope**

The inspectors assessed the Contractor's implementation of its program and procedures to verify it maintained qualification records and documentation for its inspection and test personnel, as required by QAM Policy Q-10.1, *Inspection*. This assessment included a review of personnel training records and Certificates of Qualification, discussions with Contractor managers regarding testing methodologies and examinations, maintenance of qualifications, and physical requirements.

##### **4.1.2 Observations and Assessments**

The Contractor's requirements for certification of QC inspection and test personnel were documented in Contractor procedure 24590-WTP-GPP-CON-7106A, *Quality Control Personnel Certification*, Revision 0. The inspectors discussed implementation of the procedure and qualification documentation with the Deputy Field Quality Control Manager (FQCM). The Deputy FQCM stated he was certified as a Quality Level (QL) III inspector and examined and certified the initial lead inspectors in QL-III Receiving, Welding, Piping, Mechanical Equipment, and Electrical inspectors. Once certified, the lead inspectors evaluated education and experience of each QC engineer for their disciplines, examined them, and recommended them for certification as QL-II inspectors. The Deputy FQCM then certified them. The Contractor did not have or use QL-I inspectors. The Deputy FQCM stated the Contractor's corporate office personnel certified Nondestructive Examination (NDE) personnel.

The Deputy FQCM stated the "Certificate of Qualification" documented inspectors' qualifications. QL-II inspectors were required to have a passing grade of 80% on written examinations, while QL-III inspectors required 90%. The certificate only qualified an individual

for the particular discipline for which the individual was tested. The certificate did not allow the individual to actually inspect until “endorsements” from a QL-III inspector were obtained; the endorsements were documented on the back of the form and listed specific activities in the discipline the individual was qualified to inspect. Endorsement categories were listed in Appendix 1 of the Contractor’s *Quality Control Personnel Certification* procedure. The actions described above met the intent and requirements of the procedure. As noted below, the inspectors verified implementation of the requirements by reviewing training records.

The Deputy FQCM informed the inspectors no inspection and test personnel had been removed from performing in an area of certification; all of them had maintained their capabilities in accordance with the *Quality Control Personnel Certification* requirements. As noted below, the inspectors verified this by reviewing training records. The *Quality Control Personnel Certification* procedure stated a certification was valid for three years with annual reviews and annual eye examinations.

The inspectors discussed implementation of the QL-II examination process with the Deputy FQCM and a lead QL-III inspector. Examination questions were stored on a password protected computer database accessible only to the Deputy FQCM and QL-III inspectors. The DOE inspectors observed the Deputy FQCM entering the database with a protected password and were shown the various categories of questions. Examinations were generated by randomly selecting 25 questions from the database and the examinations proctored. After the examinations were completed and graded, any incorrect answers were reviewed with the students. The DOE inspectors verified this process with a lead QL-III inspector. QL-II inspectors were allowed three attempts to pass the test. To date, all inspectors passed on the first try. The DOE inspectors verified this by review of training records.

As noted above, to verify the Contractor had implemented the requirements, the inspectors obtained the training folder that contained all of the training records for QC inspectors. The DOE inspectors then reviewed the records of eight randomly selected QL-II inspectors from recently completed QC inspections and verified: all of the inspectors had met the requirements for a passing grade on the written examinations; their Certificates of Qualification included “endorsements” for the activities they were authorized to inspect; none of the inspectors had been removed from inspection activities and there was no evidence in the folder that any inspector had been removed; and all of them were qualified for the inspection work they performed. Additionally, the inspectors reviewed Certificates of Qualification for five QL-III inspectors and 17 other QL-II inspectors and verified all of the certificates were current and valid with evidence of annual reviews and eye examinations.

#### **4.1.3 Conclusions**

The Contractor qualified and certified QC inspectors in accordance with QAM Policy Q-10.1, *Inspection*. The Contractor documented QC inspector qualifications and certifications in accordance with QAM Policy Q-10.1, *Inspection*.

## 4.2 Inspection Requirements (ITP-I-133)

### 4.2.1 Inspection Scope

The inspectors examined the Contractor's programs, procedures, and records to assess implementation of the Contractors QAM Policy Q-10.1, *Inspection* requirements for QC inspections. The inspectors also interviewed Contractor personnel to ascertain their understanding of the inspection process and requirements.

### 4.2.2 Observations and Assessments

The inspectors examined Contractor procedures and records and discussed them with Contractor personnel to ascertain (1) QC inspections required to verify conformance of an item or activity to specified requirements were planned and executed, (2) characteristics subject to inspection and inspection methods were properly specified and inspection results documented, (3) inspections were performed by qualified persons and the persons performing the inspections were sufficiently independent from the work being inspected and did not report directly to the immediate supervisor responsible for the item being examined, and (4) inspection requirements and acceptance criteria were based on approved design or technical documents. The procedures and records reviewed by the inspectors, and the results of the reviews are discussed below.

The inspectors reviewed procedure 24590-WTP-GPP-CON-3203, *Concrete Operations (Including Supply)*, Revision 3. The procedure addressed operations associated with concrete batching including Field Engineering and Quality Control inspections in accordance with 24590-WTP-GPP-CON-7101, *Construction Quality Control Program*. Section 3.11 of *Concrete Operations* discussed "Inspection and Testing" and included a detailed listing of QC in-process and final inspection requirements. Appendix 3 of the procedure was a "Concrete Pour Card" on which QC inspectors documented inspection activities. The QC initials in block 42, as noted on the instructions for the card, confirmed all curing and structural post-placement repairs were completed in compliance with all applicable design documents and specifications. The inspectors reviewed completed Concrete Pour Cards for two concrete pours (PTF-C-0004A and LAW-0006) and found them properly completed to indicate the pours were acceptable. The inspectors also verified the QC inspectors were on the qualified and certified list.

The inspectors reviewed a QC record for inspections of work package LAW-C-E-0001 (a QL-2 activity for backfilling the low activity waste tower crane foundation and concrete base mat). The QC inspection record (that also served as the QC "plan") described the backfill location; listed applicable drawings; described items to be inspected; and documented the inspection results. The record also contained acceptance criteria that were based on approved technical documents (ASTM D 1557). Furthermore, the DOE inspectors verified the QC inspectors who performed the inspections were qualified to perform the inspections and were independent from the work being inspected.

The inspectors reviewed a "Special Instruction" for NCR 24590-WTP-NCR-CON-02-176 pertaining to improper installation of a weld. The special instructions satisfied the requirements of the *Nonconformance Reporting and Control* procedure, section 3.3.5.1, which required repair

and rework dispositions for NCRs be forwarded to the responsible field engineer for incorporation into applicable special instructions, and implementation of the disposition in accordance with construction procedures. The special instructions: described the item; contained a list of specific reference documents; and was approved by the FQCM and the Field Engineering Manager. It also contained 10 “general notes” that included, among other things, applicable approved design drawings and specifications and procedures. The completed special instruction also included signed inspection records showing the work was done as required.

The inspectors reviewed nine final inspection records for planned and executed QL-1 welding on the Pretreatment Facility (PTF). In all cases, the records (labeled “Field Welding Checklist, Form WR-25) specified inspection methods, documented the results, and had appropriate QC signoffs by qualified and certified QC inspectors as required by the QC inspection procedures. The Contractor considered the forms “Final Inspection Plans” as required by QAM Policy Q-10.1, Section 3.6. The inspection records also included acceptance criteria based on approved design documents.

The inspectors reviewed six final inspection records for QL-1 welding on HLW related work. In two cases (24590-WTP-FWCL-CON-02-059 and 24590-WTP-FWCL-CON-02-003) there were references to NCRs. The inspectors reviewed the history of the NCRs and determined they were properly dispositioned and closed before the welding and final inspections were completed. All of the records indicated the inspections were planned and executed properly; inspection methods were properly specified and inspection results documented; qualified personnel performed the inspections; and acceptance criteria were based on approved design or technical documents.

The inspectors reviewed a final inspection result for QL-1 welding for HLW anchor bolts welded on 9/9/02 (24590-WTP-FWCL-CON-02-048). A footnote dated 11/13/02 referenced NCR 24590-WTP-NCR-CON-02-156 and stated it was closed and no nonconformance existed. The inspectors verified the NCR was properly dispositioned and closed before the final inspection was completed.

### **4.2.3 Conclusions**

The inspectors concluded the Contractor’s program for developing and documenting inspection requirements, and implementation of the program, continued to meet the requirements of the QAM Policy Q-10.1, *Inspection*.

## **4.3 Control of Nonconforming Items, Materials, and Services (ITP-I-133)**

### **4.3.1 Inspection Scope**

The inspectors assessed the Contractor’s implementation of nonconformance reporting and control procedures to verify nonconformances were identified, controlled, documented, evaluated and dispositioned as required by the QAM Policy Q-15.1, *Control of Nonconforming Items*. The inspectors reviewed procedures and nonconformance reports to verify the Contractor implemented its QC procedures. The inspectors interviewed appropriate Contractor QC

personnel to verify their knowledge and understanding of the requirements, and conducted in-field observations of segregation and disposition of NCR items.

#### 4.3.2 Observations and Assessments

The inspectors interviewed Contractor QC and Field Engineering personnel to determine their knowledge with regard to documentation, evaluation, identification, and control of nonconforming items, materials, and services. The inspectors determined the personnel were knowledgeable of the NCR process and understood the purpose and disposition of NCRs. They were aware of their responsibilities to document nonconforming conditions, and that work could not be completed until outstanding NCRs were resolved.

The inspectors viewed control of a number of different types of nonconforming items (e.g., C5 ducting and embeds) stored in the Marshaling Yard and eight similar nonconforming items installed at the WTP construction site. At the Marshaling Yard, the inspectors determined nonconforming items were controlled to prevent inadvertent installation or use through use of red NCR tagging or yellow tape, or segregation of the items in a separate holding area controlled by fencing and keys until disposition of the nonconformance. At the WTP construction site, the inspectors determined nonconforming items were controlled until disposition of the nonconformance by use of red NCR tagging containing legible identification and documentation of the nonconforming item.

The Contractor's *Nonconformance Reporting & Control* procedure governed the control of nonconforming items. The procedure described the process for initiating, controlling, dispositioning, implementing, and closing NCRs. It was applicable to QL and permanent plant and plant-affecting items determined to be suspect or counterfeit regardless of quality level. It stated non-QL nonconforming conditions previously documented on NCRs in accordance with the procedure would be processed in accordance with new procedure 24590-WTP-GPP-CON-3106, *Construction Deficiency Reporting and Control*, Revision 0, January 2, 2003.

The Contractor's *Nonconformance Reporting & Control* procedure contained a "Nonconformance Report" form and controlled the process. It required the FQCM to validate the NCR; the Field Engineering Manager (FEM) to recommend a disposition action; the Design Engineering Manager (DEM) to approve a final disposition action, as appropriate; and Field Engineering and Quality Control to verify appropriate actions were taken before they approved closure. Section 3.3.8.1 of the procedure discussed Field Engineering verification and stated the signature meant the Field Engineer (FE) had verified the NCR disposition had been implemented, Field Engineering inspections were completed, and the NCR was ready for QC closure verification. The instructions for completing the NCR form stated the "QC Verified" signature meant the following:

- For *Reject* disposition, the item was removed from the Project Inventory System and transferred to the Property Organization or defaced and tags removed
- For *Rework/Repair* disposition, required QC inspections were completed and tags removed

- For *Use-as-is* disposition, hold tags were removed and open work packages were closed
- For *Other* disposition, disposition was implemented, required QC inspections were performed, and hold tags removed.

The inspectors discussed the verification process with the Deputy FQCM and two field engineers who confirmed the process stated above. They further stated QC verification did not necessarily mean the verifier actually had reviewed all of the documentation that went into closure. They said, for example, the verifier could have received input from the QC Lead the work was done and verified. This would constitute “verification” and would have been sufficient for closure. In other cases, the verifier personally could have reviewed final inspection results. The inspectors determined this was consistent with the procedure discussed above.

The inspectors also discussed implementation of the QC program and NCR control with the FQCM and some of the field engineers. They stated there was no time limit for processing NCRs and in reality, closure was schedule driven. The rationale was, if there were any outstanding NCRs for any project, the work could not be completed until the NCRs were dispositioned and closed. The FQCM discussed briefly an NCR status report that showed 22 NCRs had been open greater than 180 days and of those, 15 were dispositioned and seven had not yet been dispositioned. He also showed 21 had been open between 91-180 days; 11 of those had been dispositioned and 10 had not been dispositioned.

To track NCRs the Contractor used an NCR log (a limited access database). NCRs were numbered and entered into the database by QC Lead Inspectors after the NCRs were validated. An administrative staff person updated the log, through closure. The inspectors reviewed the log, which appeared up-to-date, and found it a good tool for tracking NCRs.

Using the log as a guide, the inspectors randomly selected for review 30 NCRs (1 QL-2 [the only QL-2 on the list for the time period chosen], 28 QL-1, and 1 non-Q). The inspectors assessed whether (1) disposition was subject to design control measures commensurate with those applied to the original design, (2) changes were required to reflect as-built conditions, (3) disposition of items needing re-work or repair contained requirements to re-examine the item to verify acceptability, and (4) recommended dispositions were evaluated before acceptance or change. The inspectors observed a closed NCR's QL-1 released equipment (i.e., HLW Melter Cave #1 - Embedded C5 Duct) for NCR 24590-WTP-NCR-CON-02-115 at the WTP construction site and found the ducting nonconformance repaired (i.e., dispositioned) in accordance with the NCR's "Field Engineering Recommended Disposition." The inspectors also discussed several of the NCRs with cognizant Field Engineers who verified, by the discussions, they were knowledgeable of the NCR process for control of nonconforming items. The inspectors further verified this by noting Field Engineers originated several of the NCRs. With the exception of the two NCRs described in the following two paragraphs, the NCRs met the requirements of the NCR procedure and program.

The non-Q NCR 24590-WTP-NCR-CON-02-242 was reviewed because of wording in an attached Discrepancy Notice from a subcontractor implied a willful failure to follow procedures. The inspectors discussed this with the FQCM and others and as a result, the Contractor opened a

tracking action to investigate it (24590-WTP-RITS-QAIS-03-234). The action had two parts: 1) the testing service daily report and Discrepancy Notice attached to the NCR indicated an individual may have chosen to bypass a required test; 2) the NCR was written approximately four months after the date of the subcontractor Discrepancy Notice, a time delay not within normal expectations for timeliness. The Contractor's target date for closure of the issue was 3/28/03. The inspectors opened an Assessment Follow-up Item (AFI) A-03-OSR-RPPWTP-009-A02, for DOE review of the Contractor's investigation and corrective actions.

The inspectors identified closed NCR 24590-WTP-NCR-CON-02-156 did not have the "QC Verified" signature as required by the Contractor's *Nonconformance Reporting and Control* procedure. This NCR was issued for QL-1 items (i.e., ASTM A563 GR A nuts welded to carbon steel washers). The inspectors notified the Contractor's FQCM who immediately issued a Corrective Action Report, 24590-WTP-CAR-QA-03-059, to determine the extent of and correct the condition. During the Contractor's preliminary determination of the extent of the condition, it identified another NCR (24590-WTP-NCR-CON-02-089) that did not meet the requirement. This NCR was issued for non-QL items (i.e., pre-cast concrete manholes). The Contractor's corrective actions included retrieval of the NCRs from document control, QC validation of completion of the NCR recommended activities, and corresponding completion of the "QC Verified" blocks. Based on these corrective actions, the inspectors identified this failure to follow procedures as a Non-cited Finding.

Four of the 30 NCRs reviewed by the inspectors had been cancelled (24590-WTP-NCR-CON-03-018; -03-005; -02-237; and -02-191). All of the cancellations were in accordance with Section 3.3.2.6 of the *Nonconformance Reporting & Control* procedure regarding the process for cancellation of validated NCRs. The inspectors determined all of the other NCRs had the nonconforming items appropriately identified and documented, appropriate evaluations were performed; appropriate dispositions were proposed and resolved by Design Engineering; and appropriate organizations were notified in accordance with QAM Policy Q-15.1.

### 4.3.3 Conclusions

The Contractor identified, controlled, documented, evaluated and dispositioned nonconforming items in accordance with QAM Policy Q-15.1, *Control of Nonconforming Items*, and Contractor QC and Field Engineering personnel were knowledgeable of, and implemented, the NCR process. Two exceptions were identified. The first exception concerned an open Nonconformance Report (NCR) from August 2002 for a non-quality item, which implied a willful failure to follow procedures. This was identified as Assessment Follow-up Item A-03-OSR-RPPWTP-009-A02. The other exception, identified as a Non-cited Finding, involved failure to close an NCR in accordance with the procedure.

## 5.0 EXIT MEETING SUMMARY

The inspectors presented the inspection results to members of the Contractor management at an exit meeting on March 7, 2003. The contractor acknowledged the observations and conclusions presented. The inspectors asked the Contractor whether any material examined during the

inspection should be considered limited rights data. The Contractor identified no limited rights data. On March 21, 2003, the inspectors re-exited with the Contractor to communicate the change in the status of a Finding to a Non-cited Finding because of performance of Contractor corrective actions as identified in Section 3.2 of this report.

## **6.0 REPORT BACKGROUND INFORMATION**

### **6.1 Partial List of Persons Contacted**

D. Busch, Subcontracts Formation Manager  
 K. Chalmers, Acquisition Services Manager  
 H. Crotts, Supplier QA Manager  
 T. C. Doolittle, Procurement and Property Management  
 C. Edwards, Deputy Field Quality Control Manager  
 M. Ensminger, Field Quality Control Manager  
 J. Gorski, Warehouse Manager, Marshaling Facility  
 L. Haven, Deputy Field Engineering Manager  
 M. Hill, Project Field Procurement Manager  
 G. Hoffmann, Lead Receiving QC Engineer  
 T. Hurst, Construction Manager  
 R. Janysek, Welding Engineer  
 M. Jewell, Materials and Facilities Acquisition Team (MFAT) Manager  
 K. Jindal, Commercial Grade Dedication Coordinator, MFAT Project Engineer  
 D. Klein, Nuclear Safety Manager  
 B. Klinger, QA Assessments Manager  
 R. Mackey, Construction Superintendent  
 T. Minor, Project Field Engineering Manager  
 B. Niemi, Safety Engineer  
 W. Perry, Supplier Quality Manager  
 M. Peterson, GN Northern Project Manager  
 G. M. Pierce, Senior Contracts Supervisor  
 D. Smith, Warehouse Manager  
 D. Trybul, Shared Services Manager  
 J. Tuel, Warehouse Supervisor

### **6.2 List of Inspection Procedures Used**

Inspection Technical Procedure I-130, Revision 3, "Procurement Program Inspection"

Inspection Technical Procedure I-132, Revision 2, "Identification and Control of Items and Processes Program Inspection"

Inspection Technical Procedure I-133, Revision 2, "Quality Control Program Inspection".

### 6.3 List of Items Opened, Closed, and Discussed

#### Opened

A-03-OSR-RPPWTP-009-A01	Assessment Follow-up Item	Further ORP inspection of evaluation, critical characteristics, inspections and test of commercial grade pipe supports to be dedicated for important-to-safety applications. (Section 2.3.2.)
A-03-OSR-RPPWTP-009-A02	Assessment Follow-up Item	A subcontractor Discrepancy Notice implied a willful failure to follow procedures; the Contractor opened a RITS to investigate the issue. (Section 4.3.2)

#### Closed

None

#### Discussed

None

### 6.4 List of Acronyms

AFI	Assessment Follow-up Item
ANSI	American National Standards Institute
ASL	Approved Suppliers List
ASME	American Society of Mechanical Engineers
BNI	Bechtel National Inc.
BPO	Bulk Purchase Order
CAR	Corrective Action Report
CCN	Correspondence Control Number
CFR	Code of Federal Regulation
DEM	Design Engineering Manager
DOE	U.S. Department of Energy
FE	Field Engineer
FEM	Field Engineering Manager
FMR	Field Material Requisition
FQCM	Field Quality Control Manager
HLW	High Level Waste
IR	Inspection Report
ITP	Inspection Technical Procedure
ITS	important-to-safety

LAW	Low Activity Waste
MFAT	Materials and Facilities Acquisition Team
MR	Material Requisition
MRI	Material Receiving Instruction
NCR	Nonconformance Report
NDE	Nondestructive Examination
NIAC	Nuclear Industry Assessment Committee
NQA	Nuclear Quality Assurance
ORP	Office of River Protection
PO	Purchase Order
PTF	Pretreatment Facility
QA	quality assurance
QAM	Quality Assurance Manual
QARD	Quality Assurance Requirements and Description
QC	quality control
QL	Quality Level
RITS	Recommendations and Issues Tracking System
SDDR	Supplier Deviation Disposition Request
SIR	Surveillance Inspection Report
SRD	Safety Requirements Document
WTP	Waste Treatment and Immobilization Facility